ANALYSIS OF TPM OPPORTUNITIES IN THE DEC MARKET

INPUT

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SEPTEMBER 1987

ANALYSIS OF TPM SERVICE OPPORTUNITIES IN THE DEC EQUIPMENT MARKET

Prepared
for
Control Data Corporation
by
INPUT

September 4, 1987

INPUT®

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Z-QCD
1987

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ANALYSIS OF TPM OPPORTUNITIES

TITLE
IN THE DEC MARKET

DATE LOANED	BORROWER'S NAME
11/5/87	JUDY

CAT 23-108 PRINTED IN U. S. A.

ZQCD-164-1987

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I

Introduction

I

Introduction

This report is an analysis of the Digital Equipment Corporation systems user base, providing a detailed analysis of those users' attitudes toward third-party maintenance (TPM) as an alternative to manufacturer-supplied service (in this case, DEC). In addition, this study analyzes current usage of third-party maintenance, including usage of Control Data Corporation's (CDC) own activities in the DEC equipment market. In this fashion, the study hopes to provide both a comparison of DEC service performance to TPM service performance as well as an analysis of service opportunities for new TPM service growth.

A

Methodology

INPUT identified and surveyed 210 users of DEC systems, using the questionnaire located in Appendix A at the end of this report. INPUT surveyors were instructed to contact the appropriate data processing official, and, in most cases, the respondent's title was Data Processing Manager or (Computer) Operations Manager. Each interview lasted approximately thirty minutes.

Exhibit I-1 provides a breakdown of the DEC user sample by system used. INPUT identified these products as key TPM targets, both on the grounds of their installed base and on the basis of their expected installation growth. It was assumed that peripheral service satisfaction and opportunity would be comparable to that of systems.

At the end of the surveying process, each interview was reviewed and then entered into a dBASE III data base, allowing further manipulation of the sample into the following subcategories:

- DEC users who received their service from DEC (analyzed in chapter IV).
- DEC users who received their service from third-party maintainers (analyzed in chapter V).
- DEC users who received their service from CDC's third-party service organization (analyzed in chapter VI).
- DEC users who receive their third-party support from TPMs other than CDC (analyzed in chapter VII).

An analysis of the entire sample of DEC users is provided in chapter III for comparison purposes. Exhibit I-2 provides a breakdown of this sample by the previously discussed sources of service.

The report concludes with a series of observations about the DEC TPM user competitive environment, leading to recommendations for continued growth in that market.

EXHIBIT I-1

SAMPLE BY PRODUCT SERVED

PRODUCT	NUMBER OF INTERVIEWS
Micro VAX	55
PDP II/XX	29
VAX II/7XX	96
VAX 8XXX	28
Disk Drives	2
TOTAL	210

EXHIBIT I-2

SAMPLE BY SOURCE OF SERVICE

SOURCE		NUMBER OF INTERVIEWS	TOTAL SAMPLE (PERCENT)
DEC		162	77.2
Third Party		41	19.5
*	CDC	13	6.2
*	Other	28	13.3
Customer		7	3.3
TOTAL		210	100.0

II

Executive Summary

II

Executive Summary

This chapter is prepared in presentation format to quickly summarize the main findings of the study and to facilitate the preparation of presentation materials from this report. Each main point is covered in an exhibit along with an accompanying text.

The Digital Equipment Corporation (DEC) service market is an increasingly competitive market for third-party maintenance (TPM) organizations as more and more TPM vendors are attracted to the expected DEC product shipment growth, particularly in the new VAX 8XXX line. The leading TPM vendor active in that market, Control Data Corporation (CDC), has engaged INPUT to analyze that market, both in terms of current satisfaction with service and of future service opportunity.

A

TPM Market Forecasts, 1987-1992

In 1987, the total U.S. customer service market totalled $17.3 billion, of which third-party maintenance (TPM) vendors accounted for $2.5 billion. Exhibit II-1 breaks down this market in to "hard" services (predominantly hardware maintenance but also including product refurbishment and "fourth-party" maintenance activities) and "soft" services (which include the smaller but fast growing service areas of software support, leasing, professional services, educational services, and installations/deinstallations).

TPMs have traditionally been most involved in hardware maintenance, leading to a "hardware-only" reputation with most users. This perception has limited TPM success in expanding into high-growth markets such as software support and professional support areas (such as planning and consulting).

Recently, a number of factors have encouraged TPMs to shed this image and expand their service offerings. First, improved hardware reliability and increased pricing competition from manufacturers have decreased the margin potential of hardware maintenance. Second, users have increased pressure on all service vendors to increase and improve non-hardware service areas, particularly software support and network services.

EXHIBIT II-1

TPM MARKET FORECAST
1987-1992

TPM MARKET	$ MILLIONS 1987	$ MILLIONS 1992	AAGR
"Hard" Service	1970	3640	13
"Soft" Service	565	1324	19
TOTAL TPM	2535	4964	14

B
TPM Selection Criteria

In the past, TPMs used two strategies in their attempts to displace the manufacturer's service organization:

- Offering a sufficiently attractive discount, usually 15 to 25% off what the manufacturer charged.

- Offering to service most, if not all, of the equipment at the user's site, regardless of who manufacturered it.

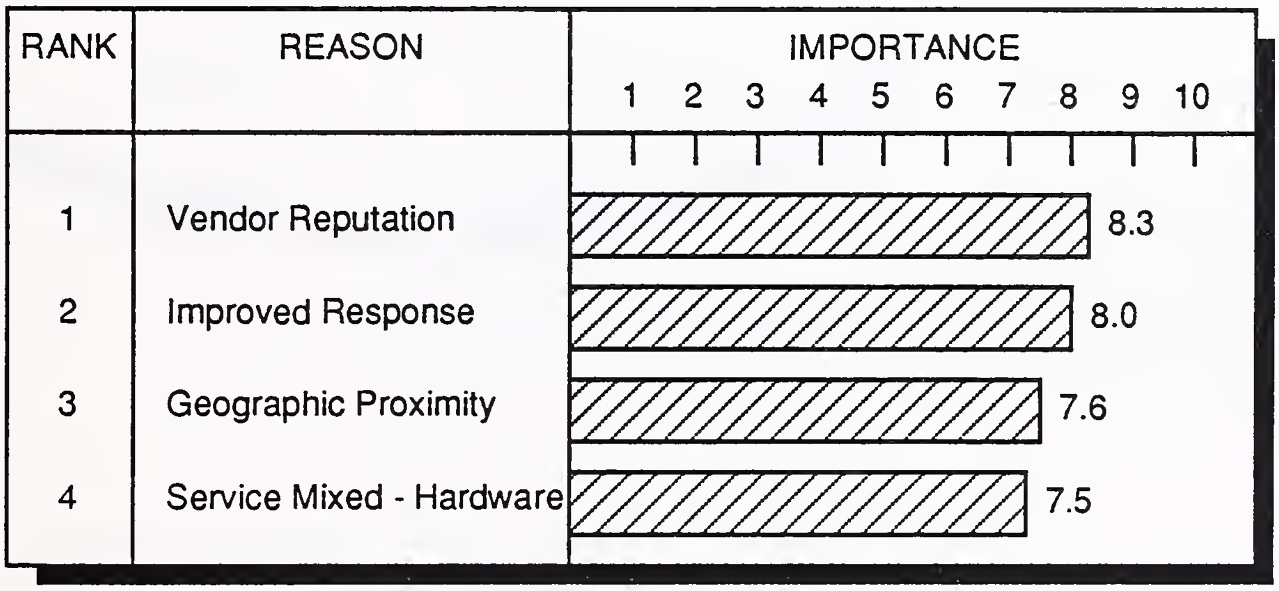
These strategies worked well until manufacturers became more competitive in their pricing levels, combined with increased competition from other TPMs. In addition, manufacturers themselves began to service peripherals manufacturered by others but attached to their systems. Hence, the "mixed-shop" advantage became less a factor in the selection of TPMs, since the manufacturers were now becoming TPMs.

Exhibit II-2 indicates that users choose a TPM on service quality factors, such as vendor reputation, response time, and the related geographic proximity. The ability to service mixed-vendor systems is only ranked fourth (of eight factors tested), and price of service was ranked only fifth (with a rating of 7.0 on a scale of 10).

These factors reflect the growing expectations that prospective TPM users have regarding service alternatives. TPMs will need to recognize these expectations, and emphasize their relative service strengths rather than competing simply on the basis of price.

EXHIBIT II-2

TPM SELECTION CRITERIA



C

Future Use of TPM

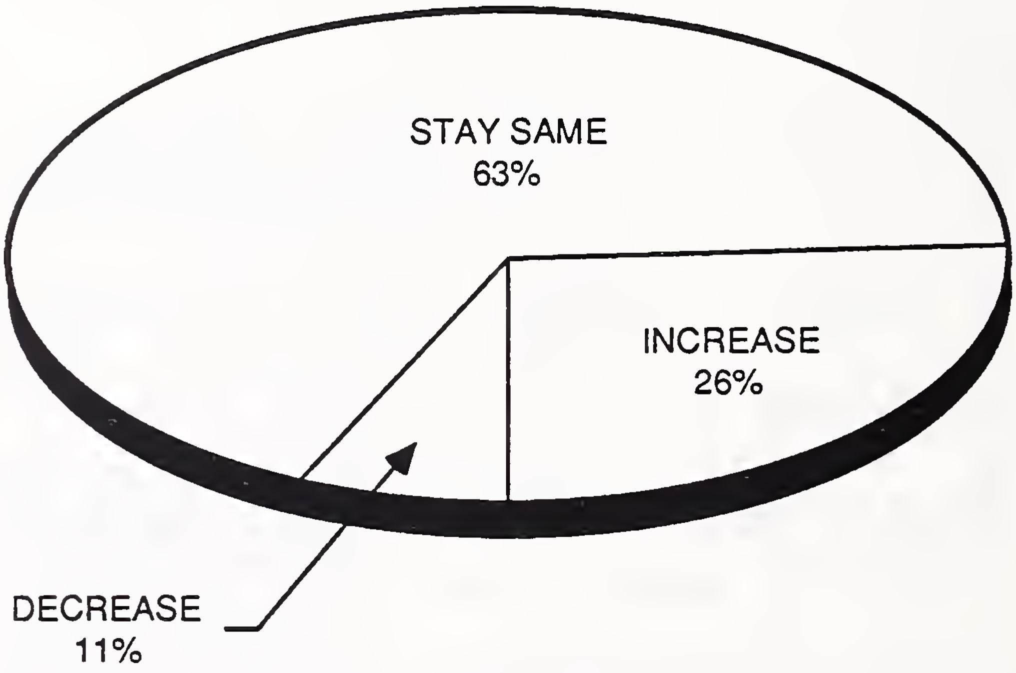
Continued TPM growth can be expected, as reflected by this sample of DEC system users. Exhibit II-3 shows that of the 57 DEC users who answered the question (all 41 of the TPM service customers, along with 16 DEC-supplied respondents), 26% expected to increase their use of TPM, and another 63% felt that they would at least keep their usage constant.

When the DEC service customers are taken out of this sample, the picture becomes even more optimistic, as 48% of the responding TPM users expect to increase their usage while only 8% expect to decrease their usage.

A number of factors may affect these expectations, however. This particular sample of TPM users was relatively satisfied with their current service performance. However, TPM user requirements for service are increasing at a rapid rate, particularly for non-hardware maintenance services. TPMs will need to address these growing expectations or face increased price-competition from manufacturers who are already active in these areas.

EXHIBIT II-3

FUTURE USE OF TPM



SAMPLE = 57

D

Competition Heats Up in DEC Market

Historically, the DEC equipment market has been a strong market for TPMs since DEC has leaned heavily on VARs and other outside distributors to penetrate new accounts. DEC went as far as to allow these distributors to "bundle" in non-DEC peripherals onto DEC systems if the non-DEC peripherals could improve the chances of making the sale. These "mixed-shop" sites became prime service targets for TPMs.

Even though DEC now attempts to win back this business by discouraging the use of non-DEC peripherals and by offering its own limited third-party service (on selected peripherals attached to DEC systems), TPM interest in DEC sites is at a new high, as a result of the rapid growth of both DEC systems and the particular markets (superminicomputer and super microcomputer) that DEC competes in.

CDC is a leading participant in that marketplace, offering service on an extensive list of DEC peripherals and systems, including the newest line of VAX 8XXX superminis. CDC also expanded this coverage to include third-party support of DEC software—the first major player to announce such a plan.

Not surprisingly, CDC was most represented in this sample of DEC system users. CDC was also considered most often as a TPM by respondents; however, GE is starting to make its presence known as a major player in that market. It should be of some comfort that CDC has far outstripped its competitors in the number of sales contacts in the last year, keeping CDC in the leader's position.

EXHIBIT II-4

TPM COMPETITIVE ENVIRONMENT

TPM VENDOR	USERS IN SAMPLE	TIMES CONSIDERED BY USER	SALES CONTACTS PAST YEAR
CDC	13	27	33
GE	3	20	11
McDonnell Douglas	2	5	7
TRW	2	4	5

E

Strategic Directions for Continued Growth

The TPM market is at the crossroads of its existence. Manufacturers have placed pressure on TPMs with extended warranties, aggressive discount plans (eg. IBM's CSA), and increasingly complete service offerings that include multi-vendor support coverage. In addition, a number of factors (such as user recognition of improved hardware reliability and the resulting pressure to reduce prices) have moved manufacturers to radically decrease hardware maintenance pricing, with hopes of making up margin with increased and unbundled software and professional support services.

As a result, TPMs will find that future growth will no longer be possible unless vendors can shed the image of "hardware maintainer" and expand their service offerings into software, educational, and professional support services. TPMs will need to establish differentiation both from each other and from the manufacturers with whom they compete.

CDC, as a TPM, stands in good position to make these changes. CDC already has taken a bold step by offering third-party software support (admittedly with mixed success). There is a growing requirement for these software support services, as is evident from the increasing dissatisfaction with support as reported in other INPUT research. Clearly, users are most drawn to telephone support, and this service can be offered in conjunction with problems data bases.

CDC also has the advantage of its experience as both a manufacturer and as a large user of computer equipment. This experience should be marketed, particularly in the areas of professional services (e.g., planning and consulting). CDC should draw from its own experience as a user to expand its services to reflect performance support versus remedial maintenance, particularly in the engineering and scientific markets where CDC already excels.

EXHIBIT II-5

RECOMMENDATIONS

- Continue to Increase Software Support
- Promote Professional Services (e.g., Planning)
- Emphasize Performance Support Services
- Adapt Services to Specific Industry Niches

III

Analysis of DEC User Service–Entire Sample

III

Analysis of DEC User Service-Entire Sample

A

Introduction

INPUT surveyed 210 users of DEC systems—the MicroVAX super micro, the PDP 11/XX traditional minicomputer, the VAX 11/7XX and newer VAX 8XXX family of superminis. The sample was broken down by source of service, with 77.2% of the sample receiving their support from DEC, another 19.5% receiving third-party support, and the remaining 3.3% performing their own systems support. INPUT deems this sample a fair reflection of the entire DEC equipment marketplace.

B

Analysis

Since the emphasis of this study is to study DEC user attitudes and experience with third-party maintenance, this chapter is most useful as a point of comparison. The key exhibits of this chapter are Exhibit III-1, which shows the entire DEC user sample's criteria for evaluating TPM as an alternative to manufacturer (DEC) service; Exhibit III-2, which shows the sample expectations regarding future TPM usage; and Exhibit III-20, which shows the network users' attitudes toward TPM support of their networks.

Exhibit III-1 indicates that DEC users are most swayed by issues of quality when deciding on a service source. Foremost is vendor reputation, followed by vendor responsiveness. Price ranked only fifth (behind reputation, responsiveness, proximity, and mixed-shop service), indicating that while users are concerned with rising service costs, they still expect quality service.

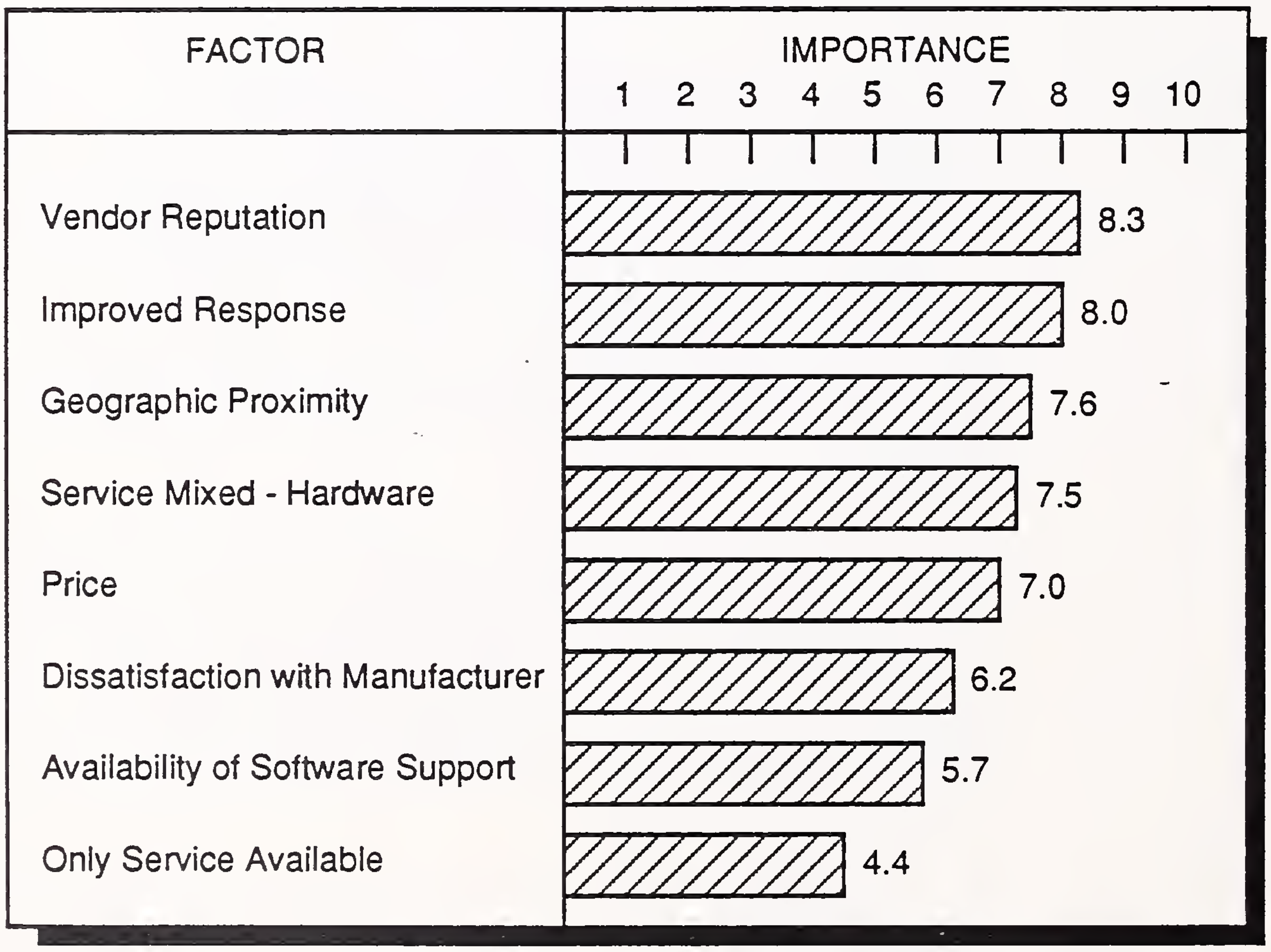
It is not surprising that mixed service capabilities ranked higher in this study that in INPUT's **TPM User Service Requirements** program research, since this sample of DEC users would be much more experienced with mixed-vendor shops.

Since so many of the total sample used DEC service, the majority (73%) of the sample declined to respond to questions regarding future expected usage. Exhibit III-2 provides some basis for hope, however, since over twice as many people who did answer the question felt that their usage would increase felt they who would decrease their usage.

Less encouraging is the relatively small number of network users (18%) who were willing to consider TPM support of their networks, as shown in Exhibit III-20. This may be more a marketing problem, with users demonstrating the (mis)perception that TPMs do not have the expertise to provide this type of service. This perception could have been fostered by a overall lack of support available to network users, causing many users to take on a significant share of the support responsibilities themselves.

EXHIBIT III-1

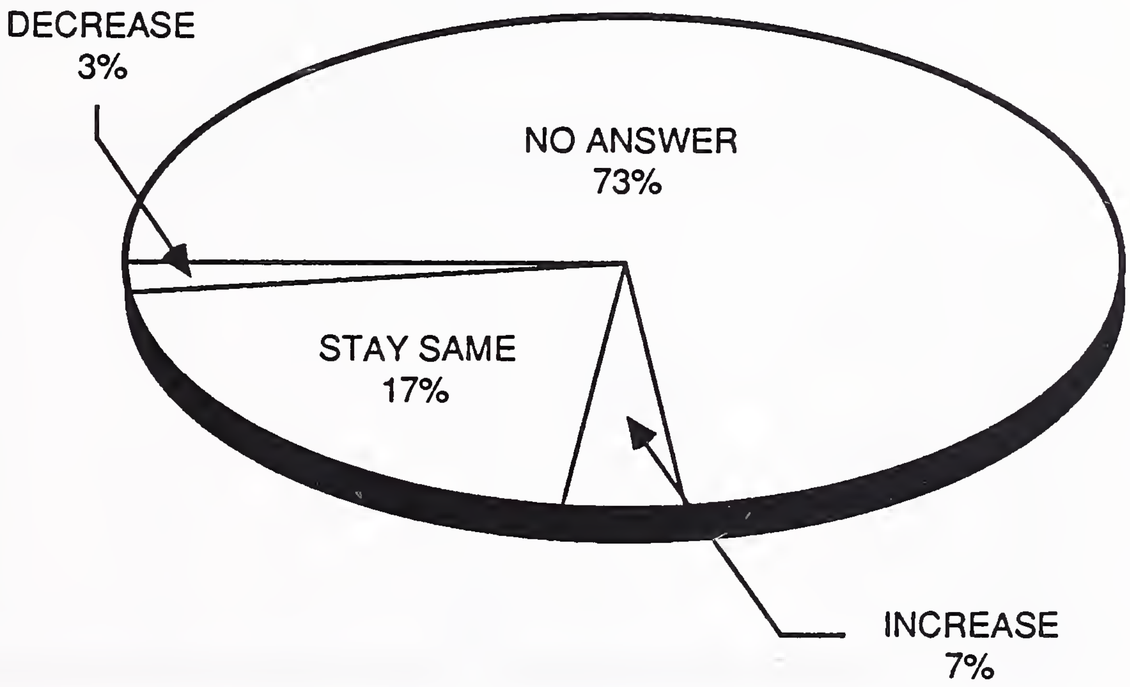
THIRD-PARTY MAINTENANCE SELECTION CRITERIA
ALL USERS



SAMPLE = 210

EXHIBIT III-2

FUTURE TPM USAGE EXPECTATIONS ALL USERS



SAMPLE = 210

EXHIBIT III-3

TPM VENDOR RESPONSIVENESS ALL USERS

CRITERIA	PERFORMANCE (HOURS)
Response Time Required	4.5
Response Time Received	4.1
Repair Time Required	6.3
Repair Time Received	5.8

SAMPLE = 210

EXHIBIT III-4

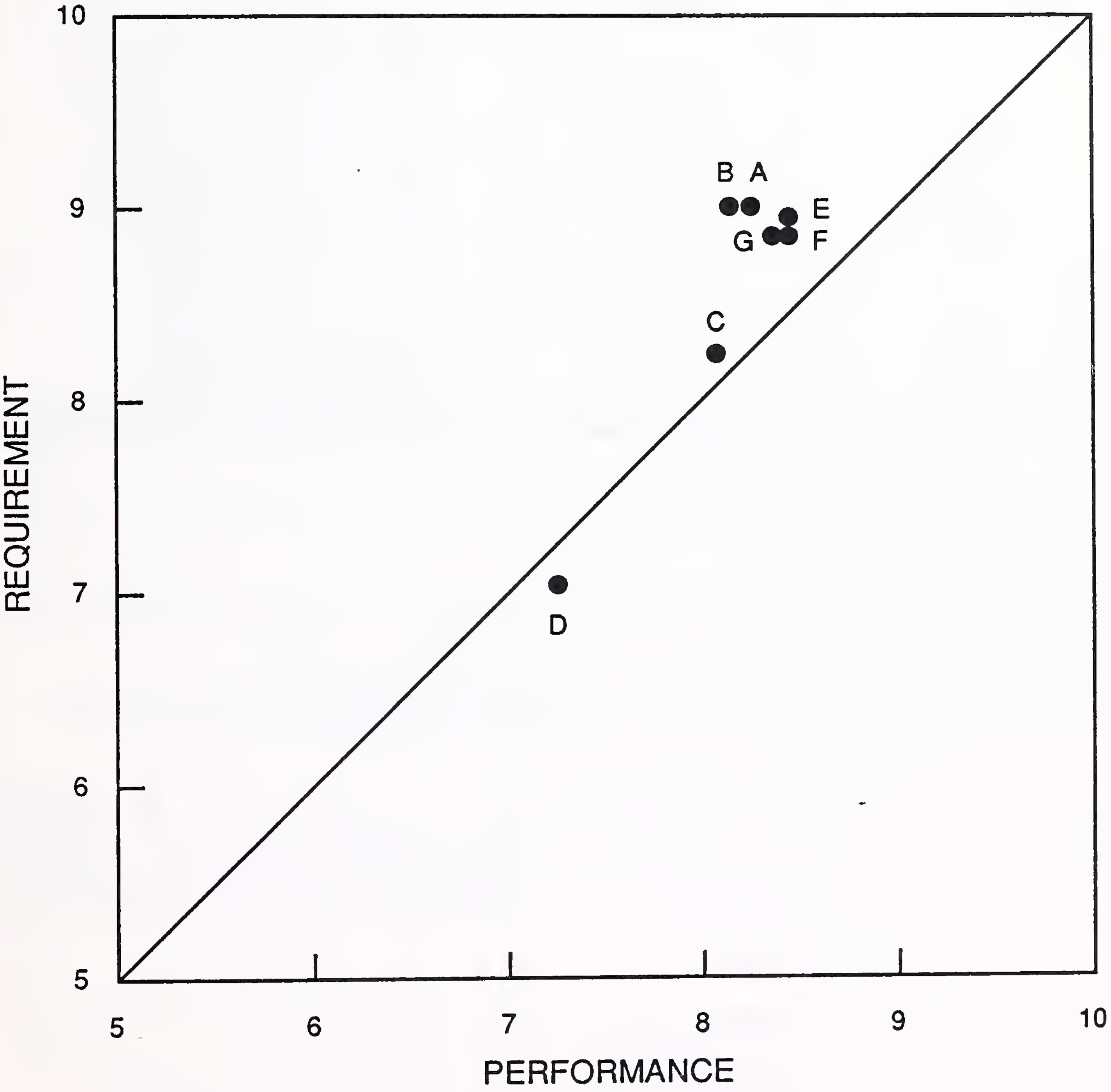
TPM HARDWARE MAINTENANCE REQUIREMENT/PERFORMANCE LEVELS ALL USERS

HARDWARE MAINTENANCE AREA	USER RATING*		PERFORMANCE EXCEEDS (FALLS BELOW) REQUIREMENT
	REQUIREMENT	PERFORMANCE	
FE Skill Level	9.0	8.3	(0.7)
Parts Availability	9.0	8.2	(0.8)
Dispatching	8.3	8.1	(0.2)
Contract Flexibility	7.1	7.3	0.2
Overall Quality	8.9	8.4	(0.5)
Response Time	8.8	8.4	(0.4)
Repair Time	8.8	8.3	(0.5)

*SCALE: 1 = LOW, 10 = HIGH
SAMPLE = 210

EXHIBIT III-5

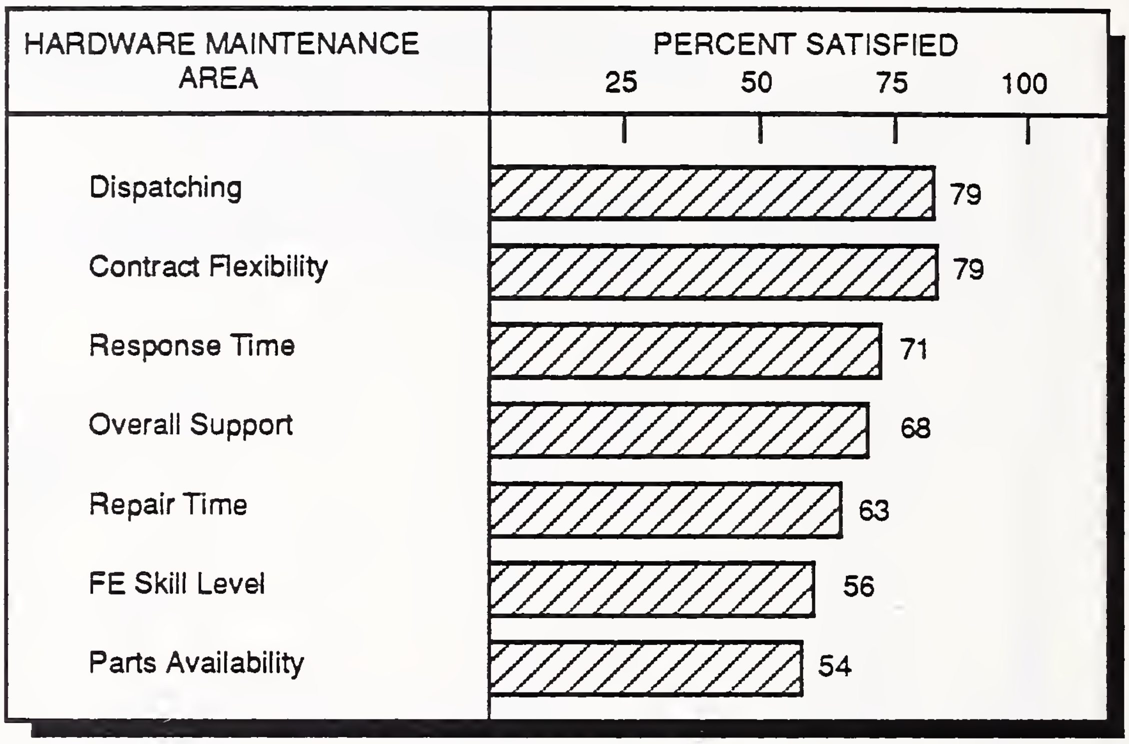
TPM HARDWARE MAINTENANCE PERFORMANCE VERSUS USER REQUIREMENT ALL USERS



A: FE Skill Level
B: Parts Availability
C: Dispatching
D: Contract Flexibility
E: Overall Quality
F: Response Time
G: Repair Time

EXHIBIT III-6

TPM HARDWARE MAINTENANCE SATISFACTION LEVELS ALL USERS



SAMPLE = 210

EXHIBIT III-7

TPM VENDOR REQUIREMENT/PERFORMANCE LEVELS ALL USERS

SERVICE	USER RATING*		PERFORMANCE EXCEEDS (FALLS BELOW) REQUIREMENT
	REQUIREMENT	PERFORMANCE	
Professional Services	5.0	6.5	1.5
Training	5.0	6.3	1.3
Add-On/Supplies Sales	5.6	6.4	0.8
Relocation/Deinstalls	4.8	6.3	1.5
Conversion/Upgrades	6.8	7.3	0.5

*SCALE: 1 = LOW, 10 = HIGH
SAMPLE = 210

EXHIBIT III-8

TPM VENDOR
PERFORMANCE VERSUS USER REQUIREMENT
ALL USERS

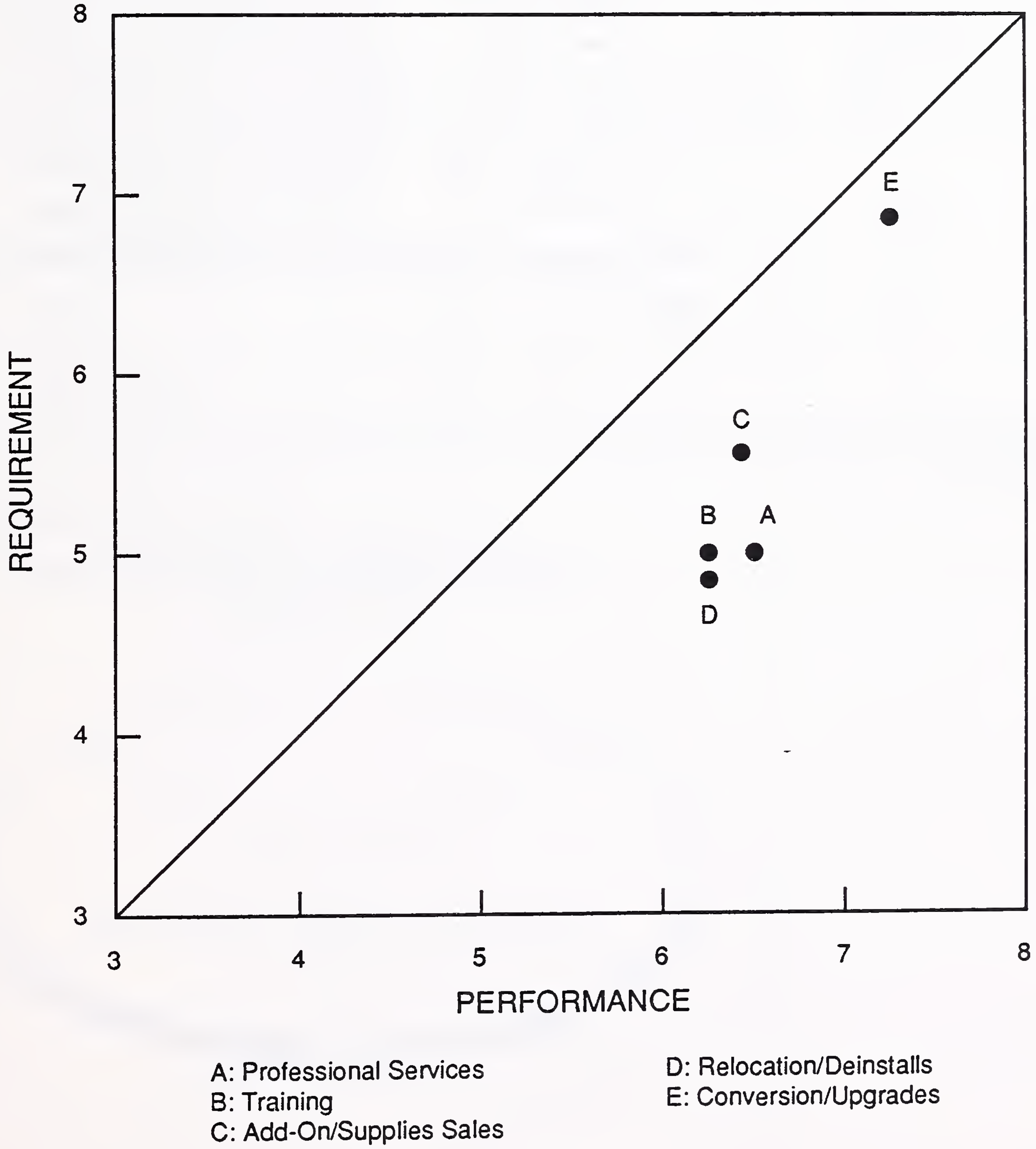
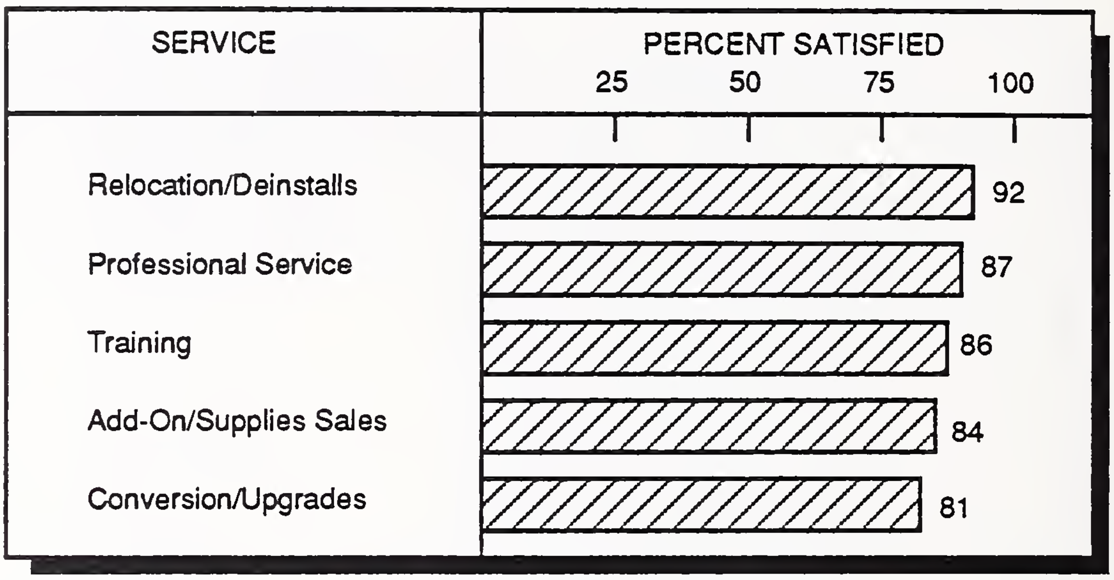


EXHIBIT III-9

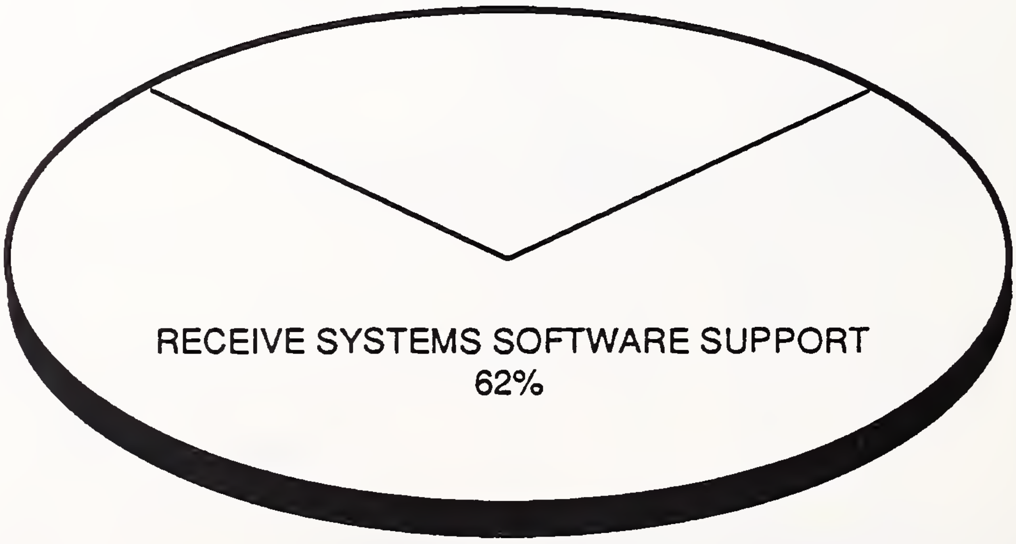
TPM USER SATISFACTION LEVELS
ALL USERS



SAMPLE = 210

EXHIBIT III-10

TPM INVOLVEMENT IN SYSTEMS SOFTWARE SUPPORT
ALL USERS



SAMPLE = 210

EXHIBIT III-11

TPM SYSTEMS SOFTWARE SUPPORT REQUIREMENT/PERFORMANCE LEVELS ALL USERS

SYSTEMS SOFTWARE SUPPORT	USER RATING*		PERFORMANCE EXCEEDS (FAILS TO MEET) REQUIREMENT
	REQUIREMENT	PERFORMANCE	
On-Site Fixes	4.6	5.8	1.2
Phone Support	7.4	7.2	(0.2)
Remote Support	5.0	6.2	1.2
Training	5.9	6.7	0.6
Consulting	4.9	6.0	1.1
Mailed Revisions	7.9	7.7	(0.2)

*SCALE: 1 = LOW, 10 = HIGH
SAMPLE = 210

EXHIBIT III-12

TPM SYSTEMS SOFTWARE SUPPORT PERFORMANCE VERSUS USER REQUIREMENT ALL USERS

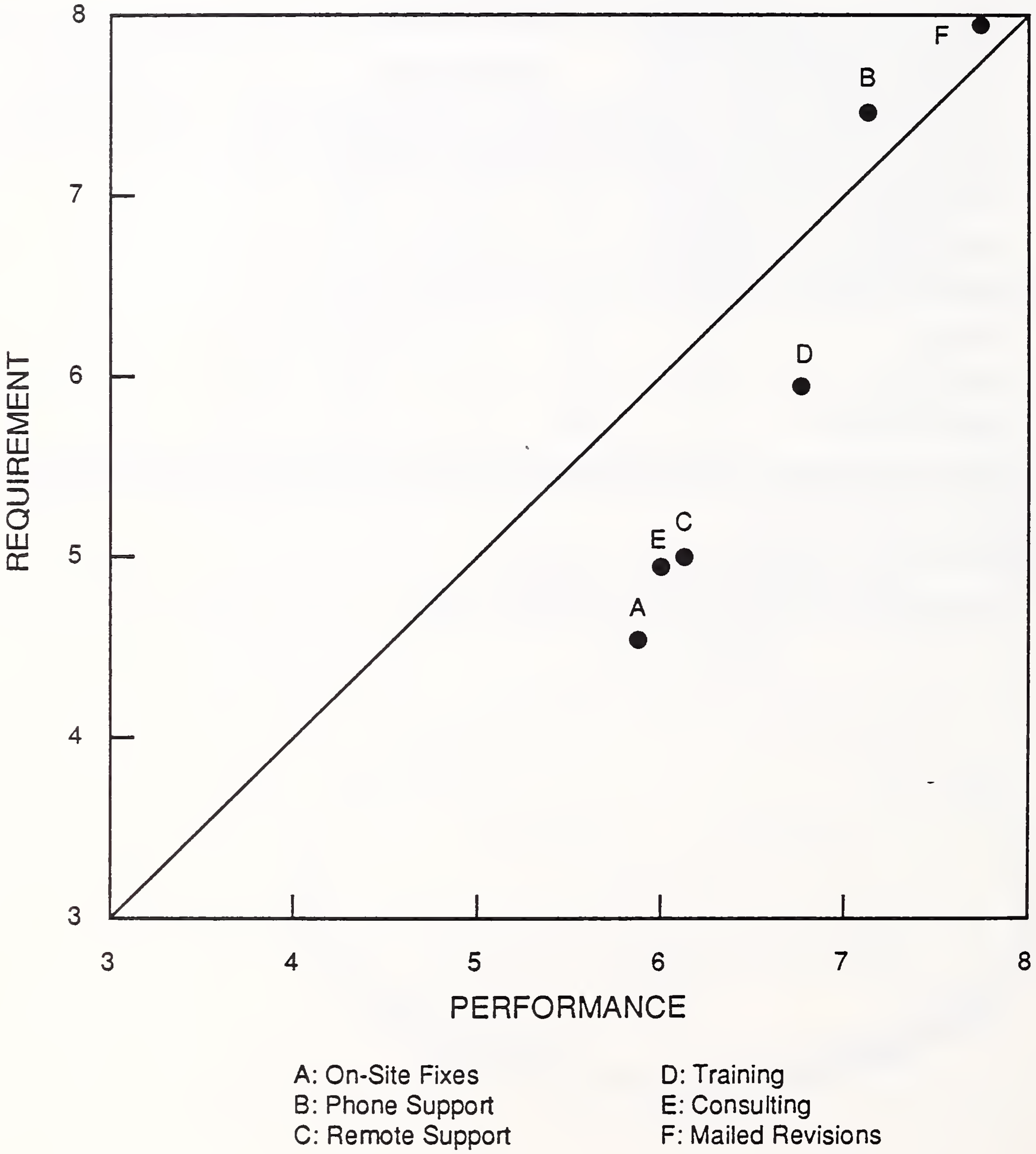


EXHIBIT III-13

TPM USER SYSTEMS SOFTWARE SATISFACTION LEVELS ALL USERS

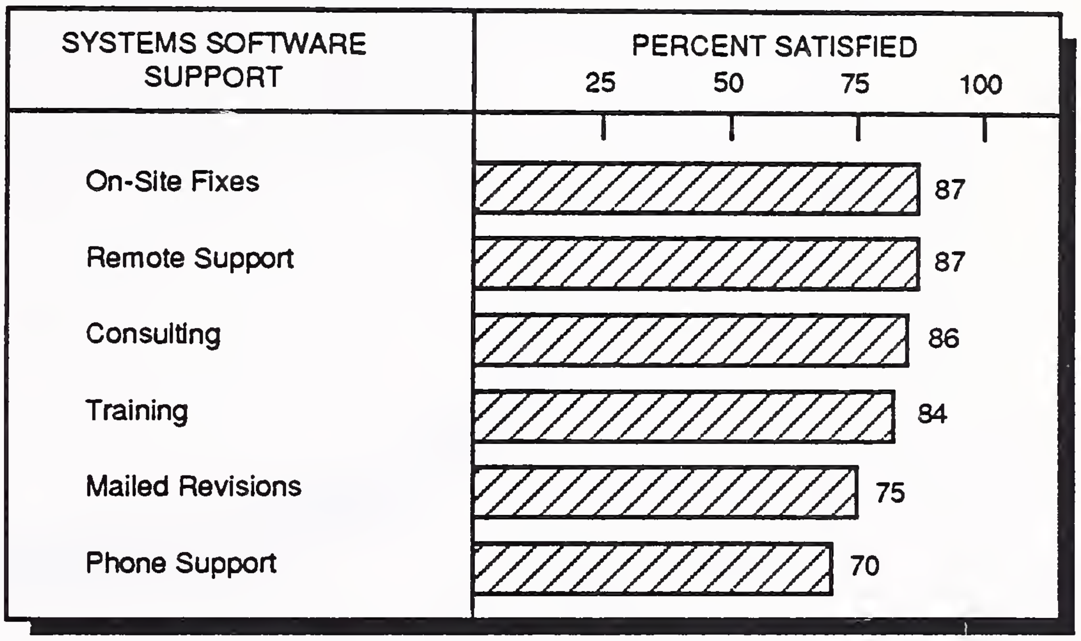
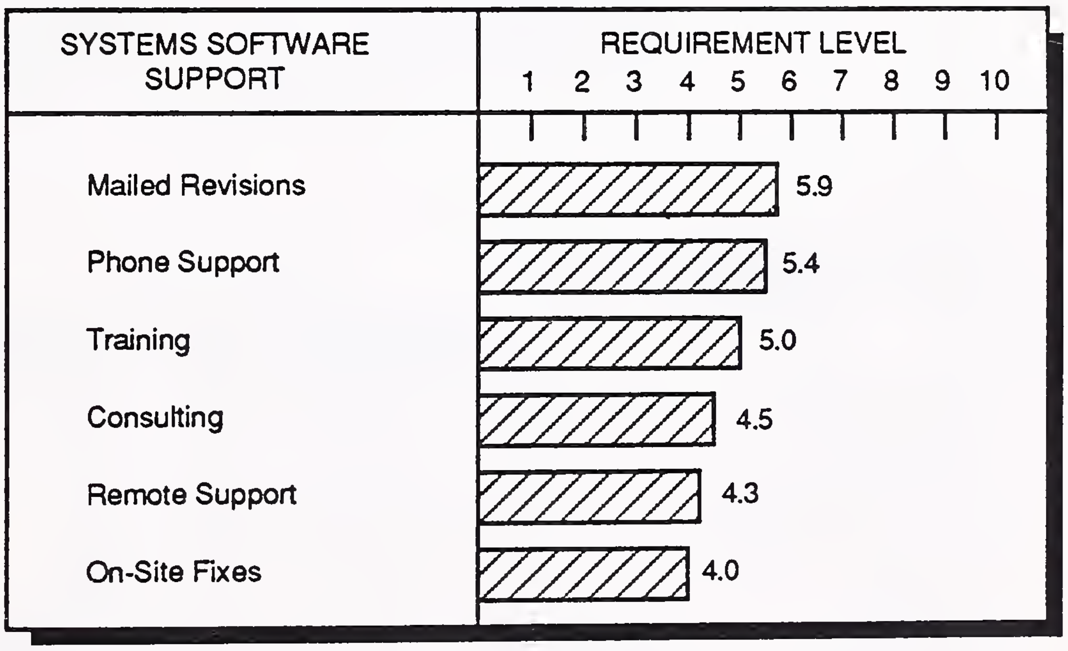


EXHIBIT III-14

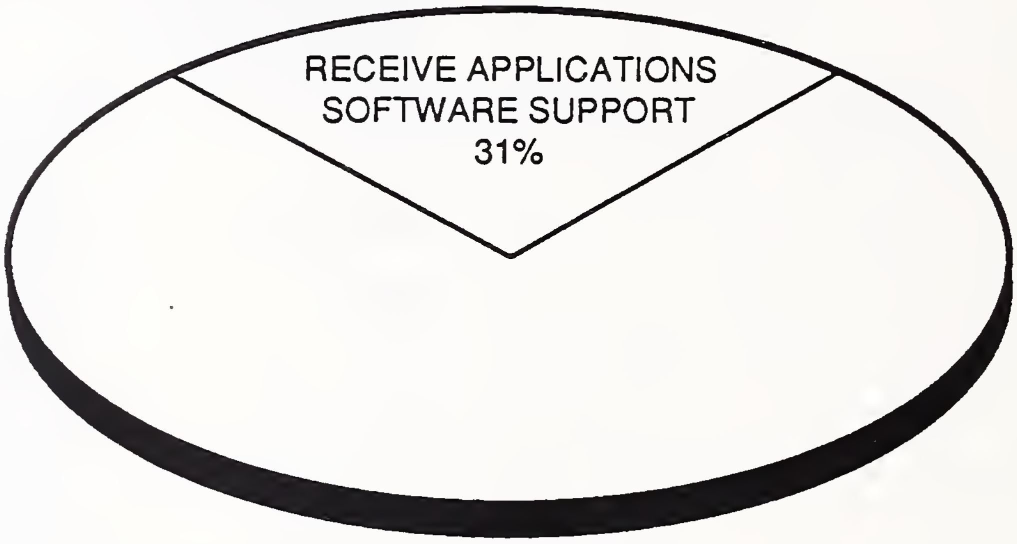
TPM SYSTEMS SOFTWARE SUPPORT OPPORTUNITY LEVELS



REQUIREMENT LEVEL SCALE: 1 = LOW, 10 = HIGH

EXHIBIT III-15

TPM INVOLVEMENT IN APPLICATIONS SOFTWARE SUPPORT ALL USERS



SAMPLE = 210

EXHIBIT III-16

TPM APPLICATIONS SOFTWARE SUPPORT REQUIREMENT/PERFORMANCE LEVELS ALL USERS

APPLICATIONS SOFTWARE SUPPORT	USER RATING*		PERFORMANCE EXCEEDS (FAILS TO MEET) REQUIREMENT
	REQUIREMENT	PERFORMANCE	
On-Site Fixes	5.2	5.9	0.7
Phone Support	7.9	7.6	(0.3)
Remote Support	5.3	5.8	0.5
Training	6.1	6.5	0.4
Consulting	5.8	6.3	0.5
Mailed Revisions	7.8	7.7	(0.1)

*SCALE: 1 = LOW, 10 = HIGH

EXHIBIT III-17

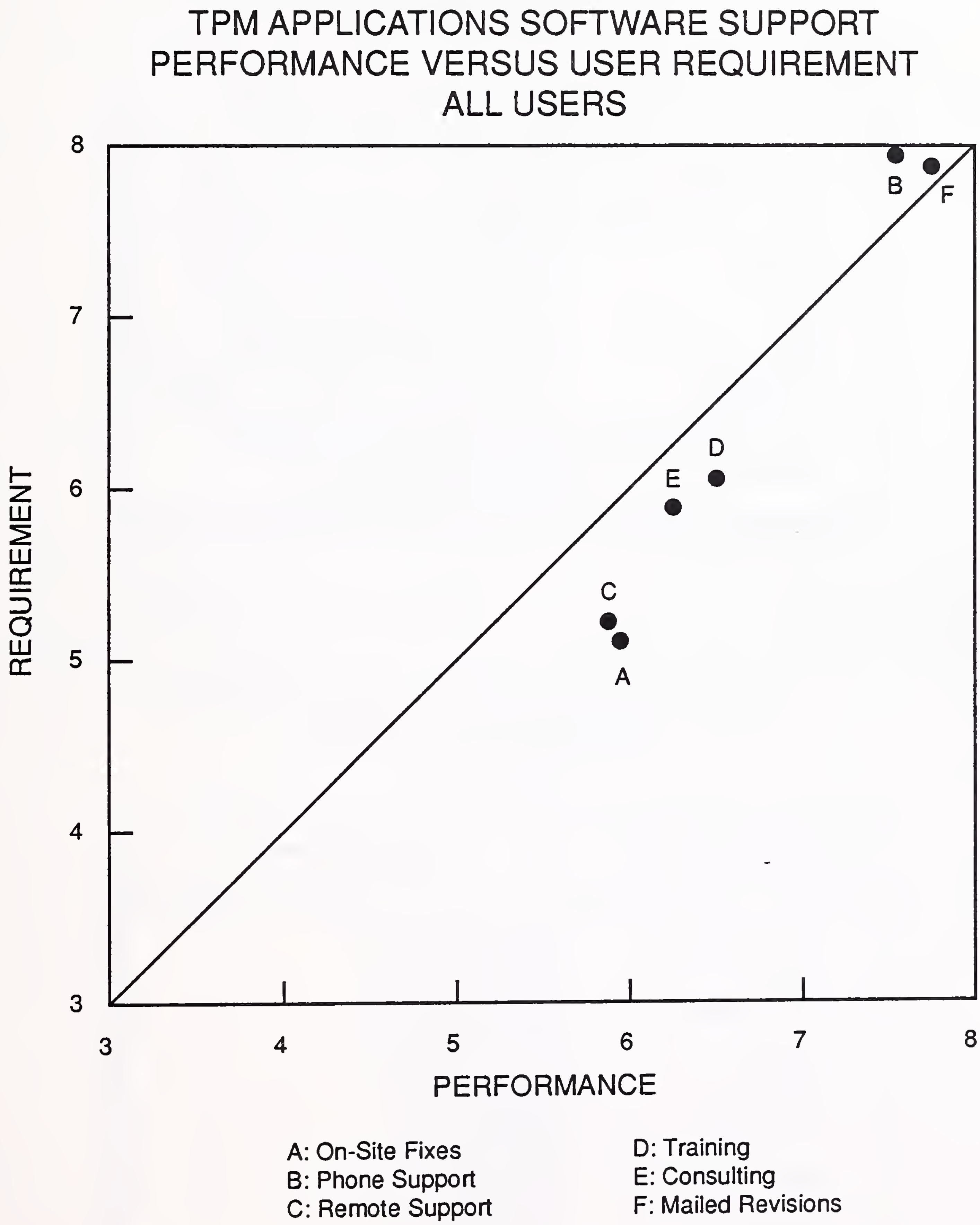


EXHIBIT III-18

TPM APPLICATIONS SOFTWARE SUPPORT SATISFACTION LEVELS ALL USERS

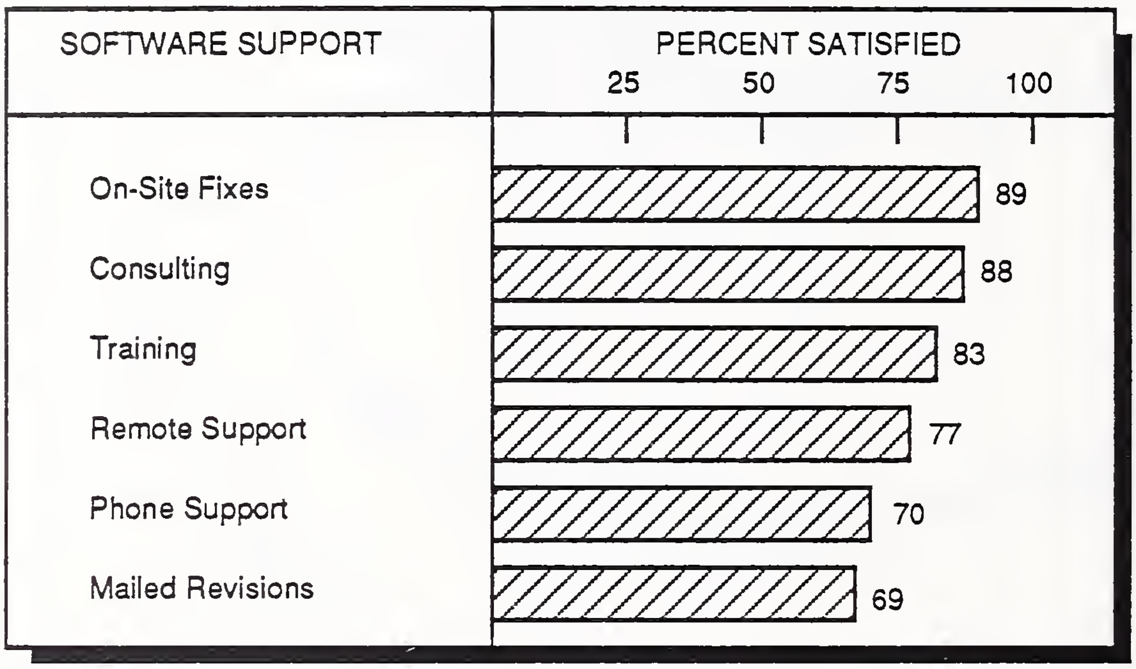
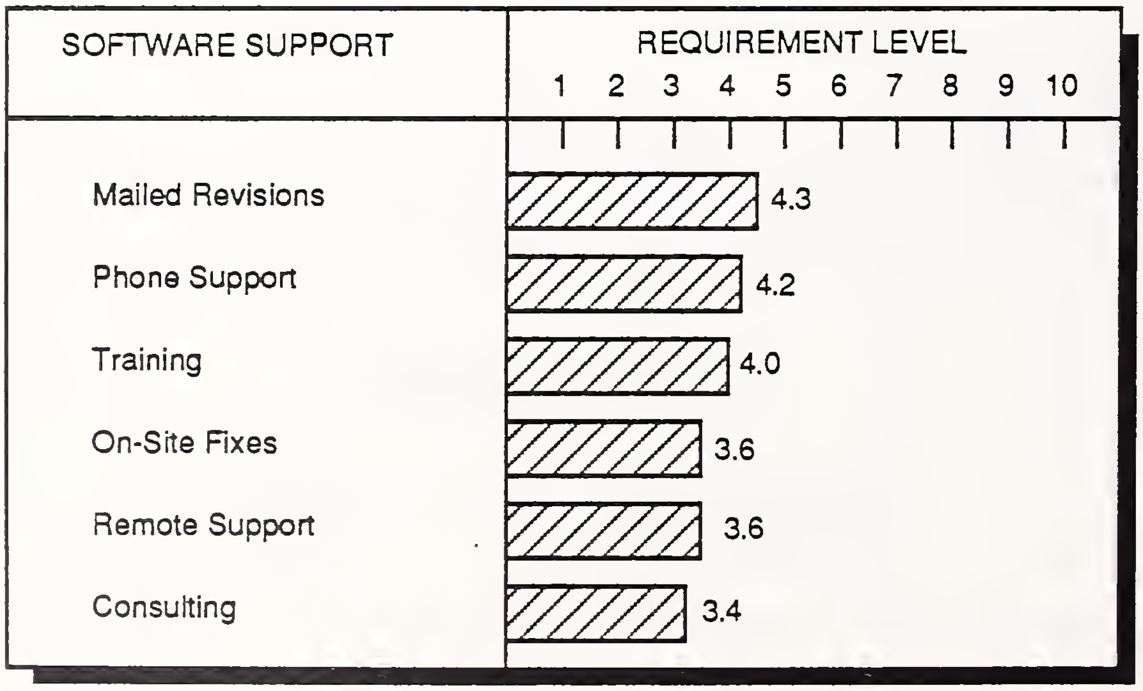


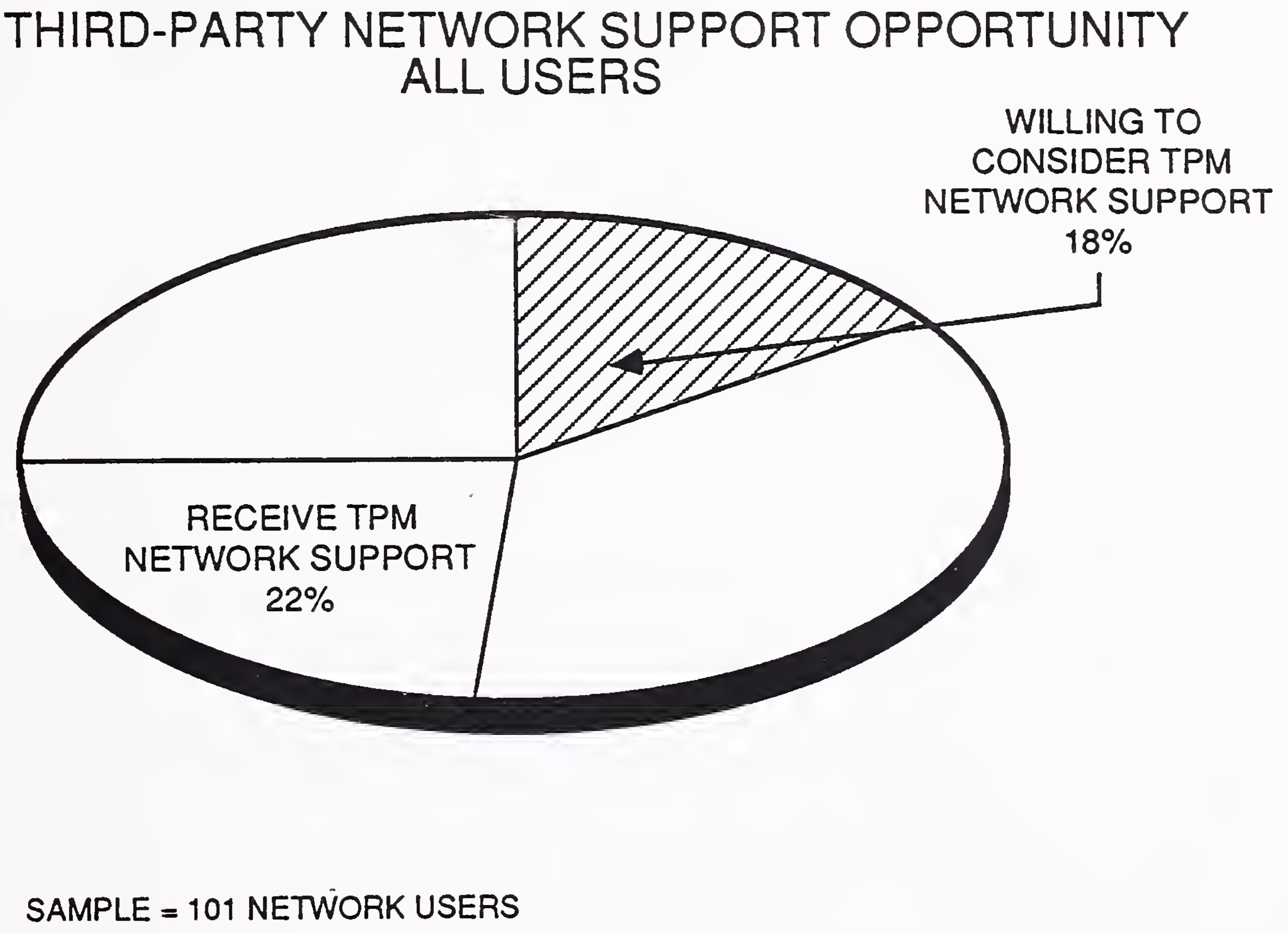
EXHIBIT III-19

TPM APPLICATIONS SOFTWARE SUPPORT OPPORTUNITY LEVELS ALL USERS



REQUIREMENT LEVEL SCALE: 1 = LOW, 10 = HIGH

EXHIBIT III-20



IV

Analysis of DEC User Service–DEC Supplied

IV

Analysis of DEC User Service–DEC Supplied

A

Introduction

In this chapter, those users who receive their primary support from DEC are analyzed. This provides both a point of comparison with those responses from users of TPM, and an indication of the opportunities for growth, since these users represent new targets for TPM.

The focus of certain questions has been changed where appropriate in order to measure these users' attitudes toward their potential future use of TPM.

B

Analysis

Of the total sample of 210 DEC users, 162 (77.2% of the sample) receive their primary support directly from DEC. DEC has built an excellent reputation for service and support, largely due to innovative service delivery methods that make use of automated service delivery activities such as artificial intelligence-based problems data bases, remote support, and parts tracking, to name just a few.

Exhibit IV-3 demonstrates DEC service performance in more traditional service measurements such as response and repair times, with both marks bettering user requirements. Indeed, DEC excells in the key area of system availability, satisfying 58% of the older VAX 11/78X supermini users and 71% of the newer VAX 8XXX supermini users (from INPUT's 1987 **Analysis of Small Systems Service**). Exhibit IV-6 reflects the DEC users' satisfaction with DEC's responsiveness, with 70% of the DEC sample satisfied with response time and 63% satisfied with repair time.

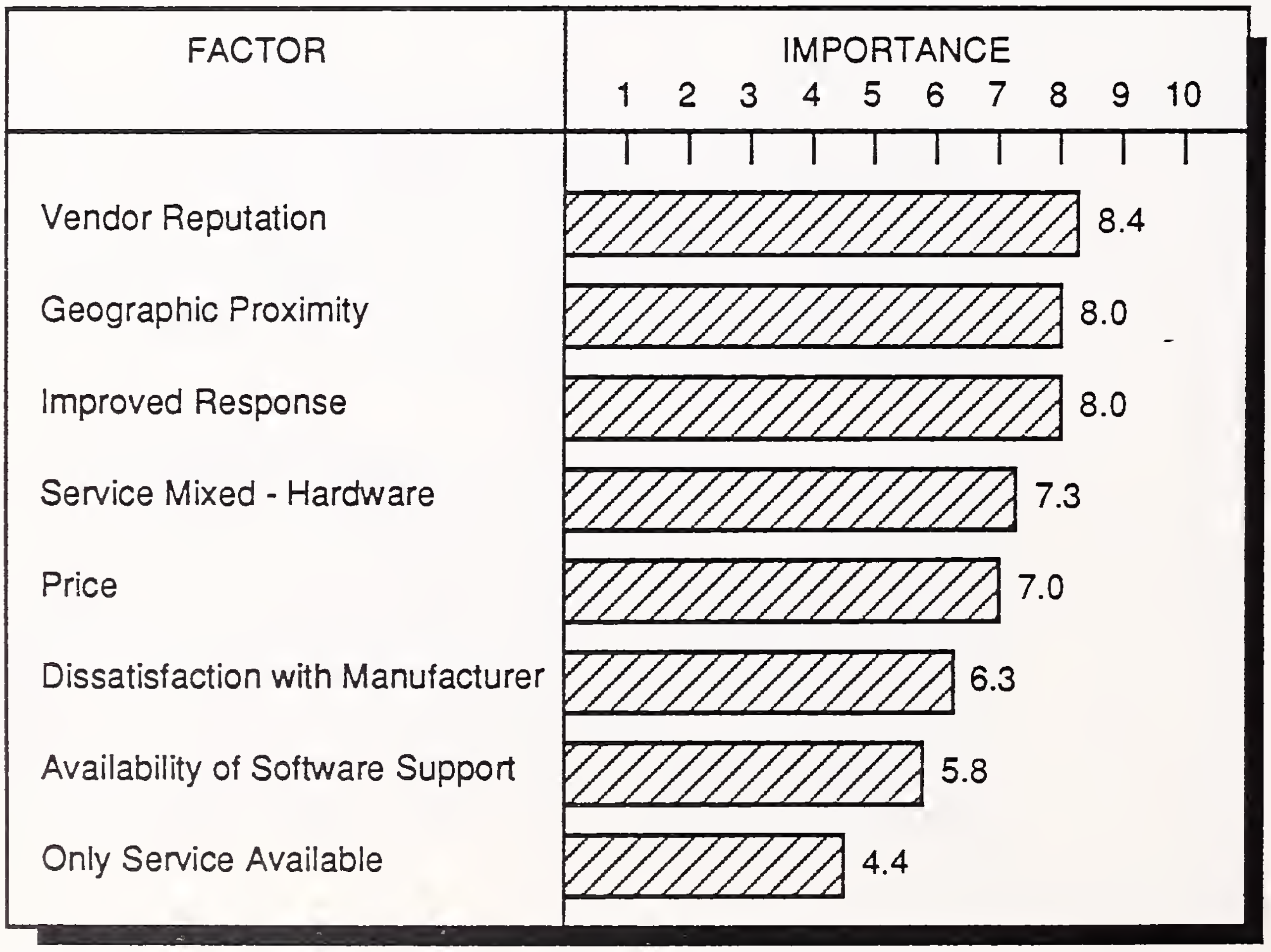
The DEC service users reported general satisfaction in all service areas and extremely high satisfaction in the areas of professional services

(Exhibits IV-7 through IV-9) and software support (Exhibits IV-11 through IV-18). As a result, it would appear to be difficult to displace DEC as a service source without demonstrating a cost savings along with high-quality service. In fact, only 3% of the DEC service users expected to increase their usage of TPM (of course, it is not entirely clear if the respondents felt uncomfortable with the wording of the question, since it could be interpreted as increasing non-usage. This might explain why 79% did not answer the question.).

A key issue that may represent significant growth opportunities is presented in Exhibit IV-20, which shows that 20% of these DEC service users already use TPMs for support of their networks and another 25% would be willing to consider TPM support of their networks. Since DEC system growth is closely tied to networking, this might provide the opening needed to penetrate key accounts in the DEC system market.

EXHIBIT IV-1

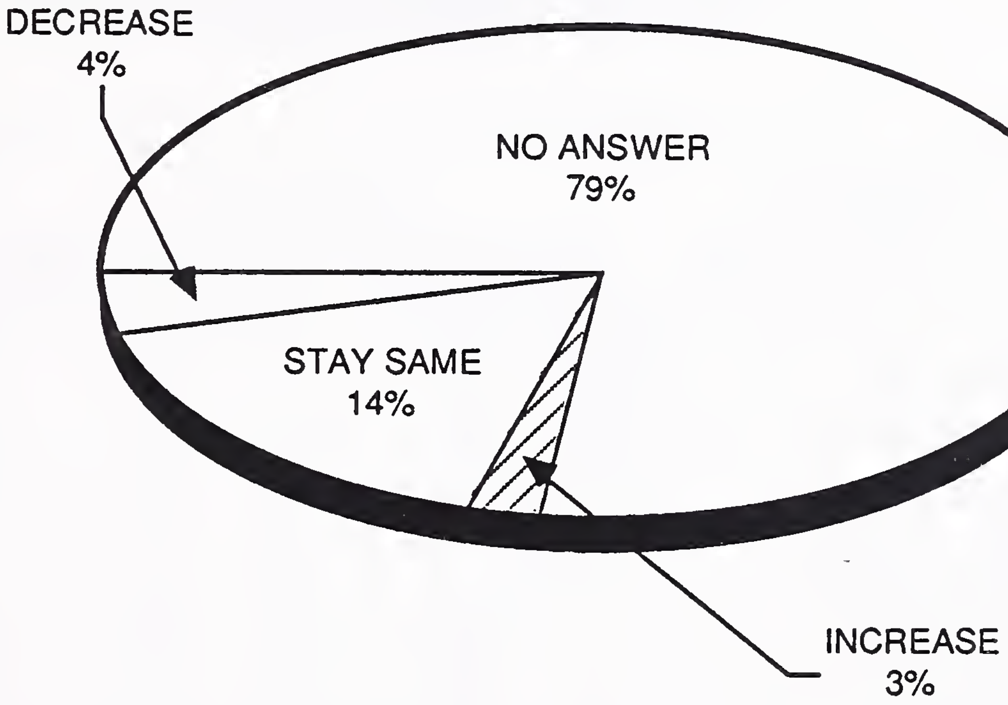
THIRD-PARTY MAINTENANCE SELECTION CRITERIA
DEC USERS/DEC SERVICE



SAMPLE = 162

EXHIBIT IV-2

FUTURE TPM USAGE EXPECTATIONS DEC USERS/DEC SERVICE



SAMPLE = 162

EXHIBIT IV-3

TPM VENDOR RESPONSIVENESS DEC USERS/DEC SERVICE

CRITERIA	PERFORMANCE (HOURS)
Response Time Required	4.6
Response Time Received	4.2
Repair Time Required	6.2
Repair Time Received	5.7

SAMPLE = 162

EXHIBIT IV-4

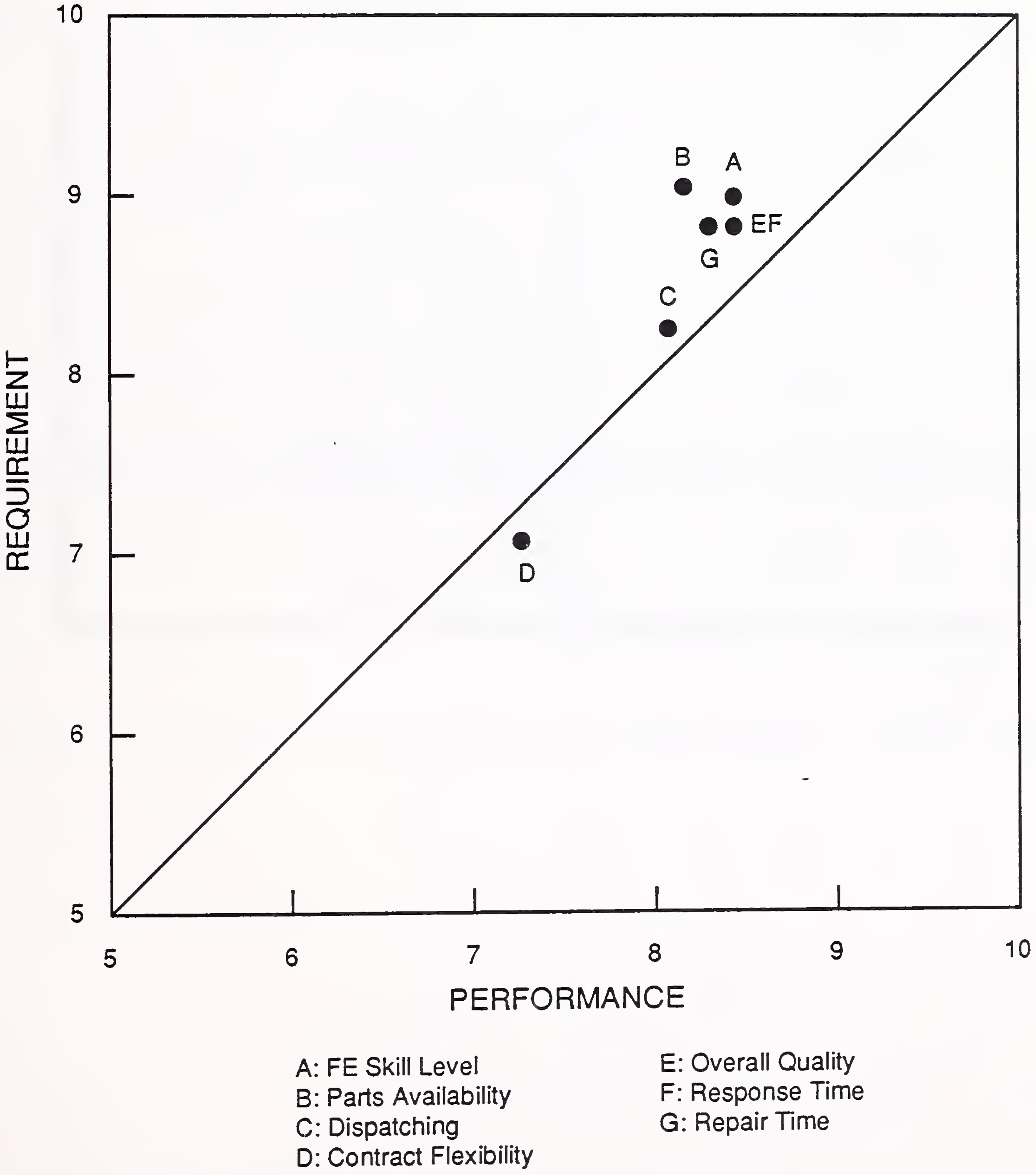
TPM HARDWARE MAINTENANCE REQUIREMENT/PERFORMANCE LEVELS DEC USERS/DEC SERVICE

HARDWARE MAINTENANCE AREA	USER RATING*		PERFORMANCE EXCEEDS (FALLS BELOW) REQUIREMENT
	REQUIREMENT	PERFORMANCE	
FE Skill Level	9.0	8.4	(0.6)
Parts Availability	9.1	8.2	(0.9)
Dispatching	8.3	8.1	(0.2)
Contract Flexibility	7.1	7.3	0.2
Overall Quality	8.8	8.4	(0.4)
Response Time	8.8	8.4	(0.4)
Repair Time	8.8	8.3	(0.5)

*SCALE: 1 = LOW, 10 = HIGH
SAMPLE = 162

EXHIBIT IV-5

TPM HARDWARE MAINTENANCE
PERFORMANCE VERSUS USER REQUIREMENT
DEC USERS/DEC SERVICE



SAMPLE = 162

EXHIBIT IV-6

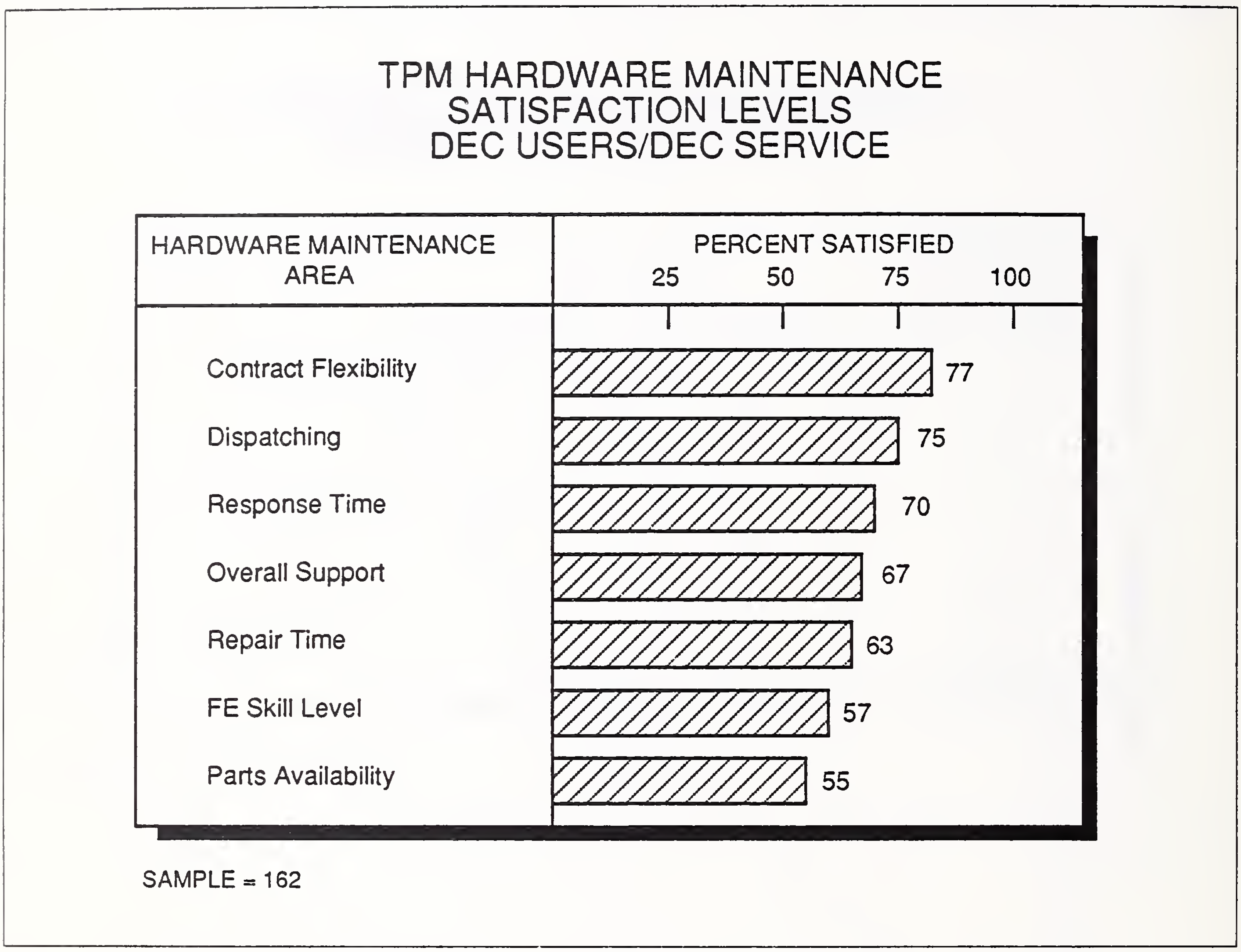

TPM HARDWARE MAINTENANCE
SATISFACTION LEVELS
DEC USERS/DEC SERVICE
HARDWARE MAINTENANCE AREA
PERCENT SATISFIED
25
50
75
100
Contract Flexibility
77
Dispatching
75
Response Time
70
Overall Support
67
Repair Time
63
FE Skill Level
57
Parts Availability
55
SAMPLE = 162

EXHIBIT IV-7

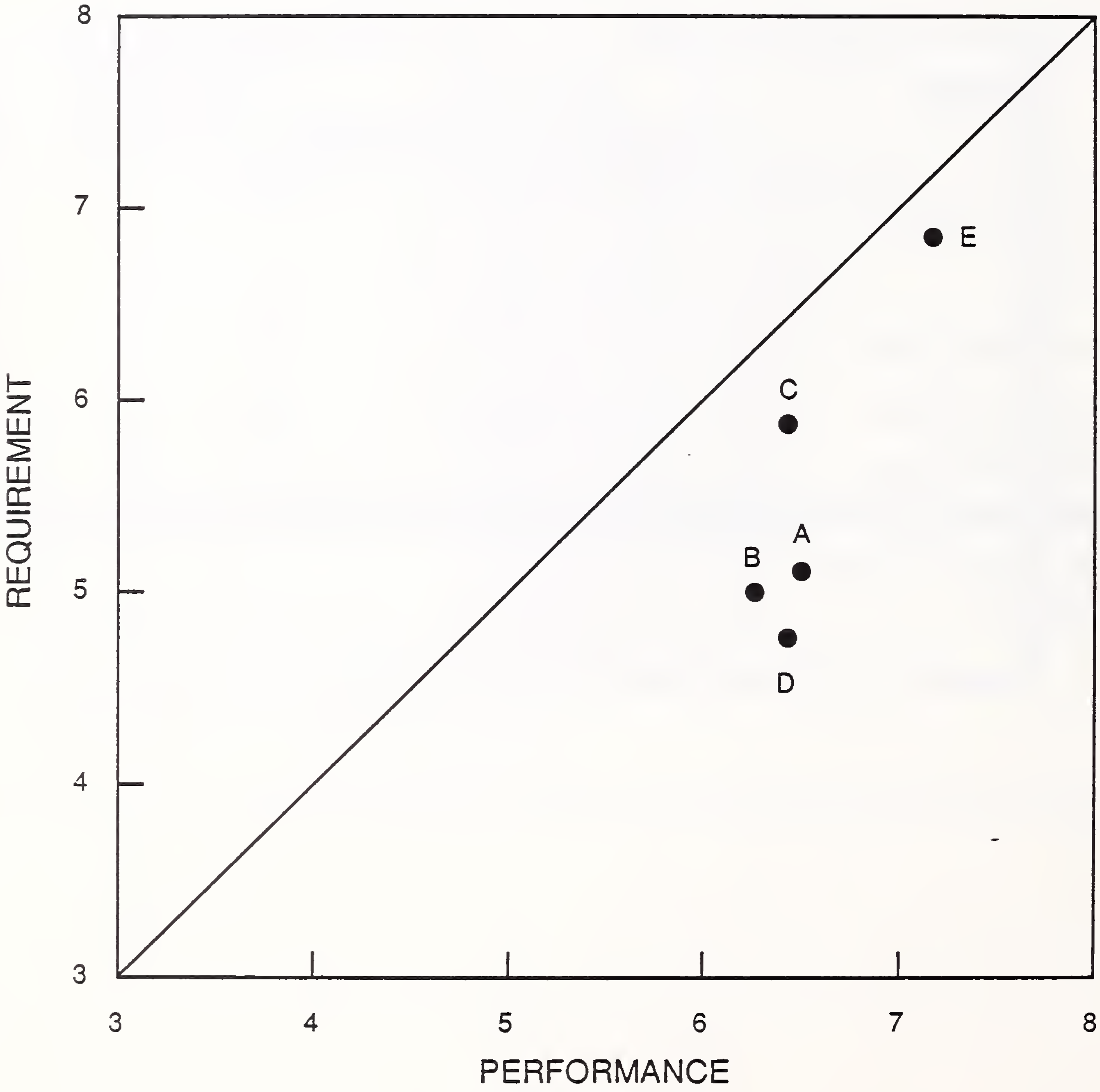
TPM VENDOR REQUIREMENT/PERFORMANCE LEVELS DEC USERS/DEC SERVICE

SERVICE	USER RATING*		PERFORMANCE EXCEEDS (FALLS BELOW) REQUIREMENT
	REQUIREMENT	PERFORMANCE	
Professional Services	5.2	6.5	1.3
Training	5.0	6.3	1.3
Add-On/Supplies Sales	5.8	6.4	0.6
Relocation/Deinstalls	4.7	6.4	1.7
Conversion/Upgrades	6.8	7.2	0.4

*SCALE: 1 = LOW, 10 = HIGH
SAMPLE = 162

EXHIBIT IV-8

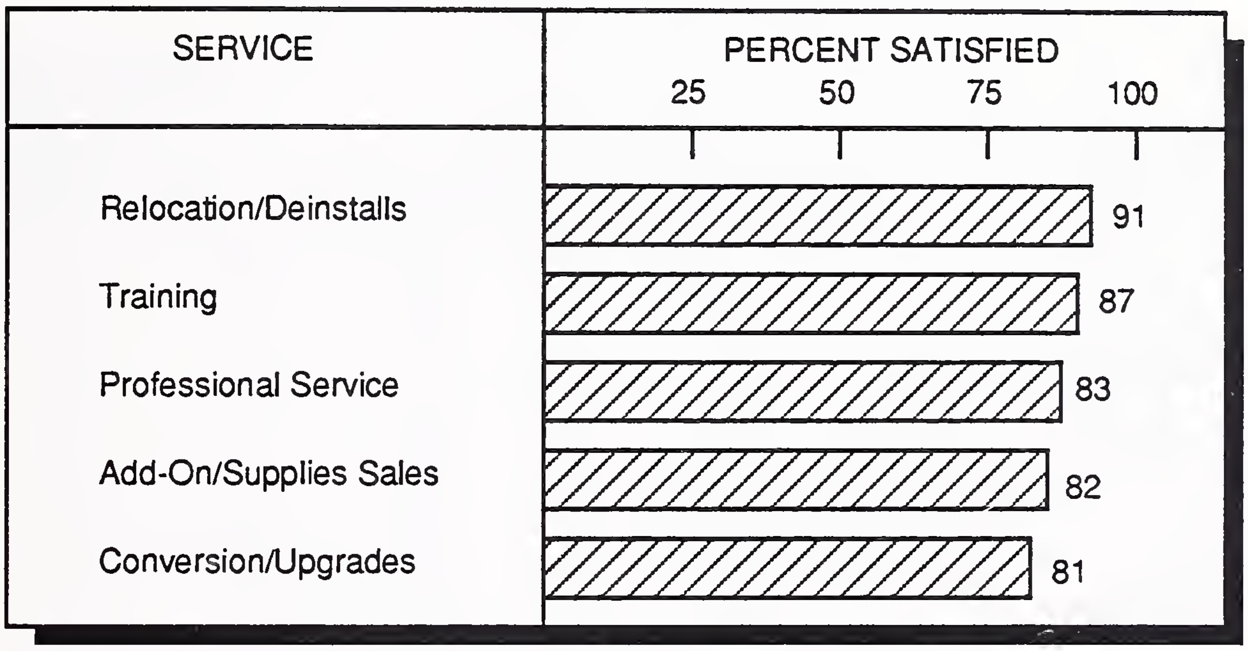
TPM VENDOR
PERFORMANCE VERSUS USER REQUIREMENT
DEC USERS/DEC SERVICE



A: Professional Services
B: Training
C: Add-On/Supplies Sales
D: Relocation/Deinstalls
E: Conversion/Upgrades

EXHIBIT IV-9

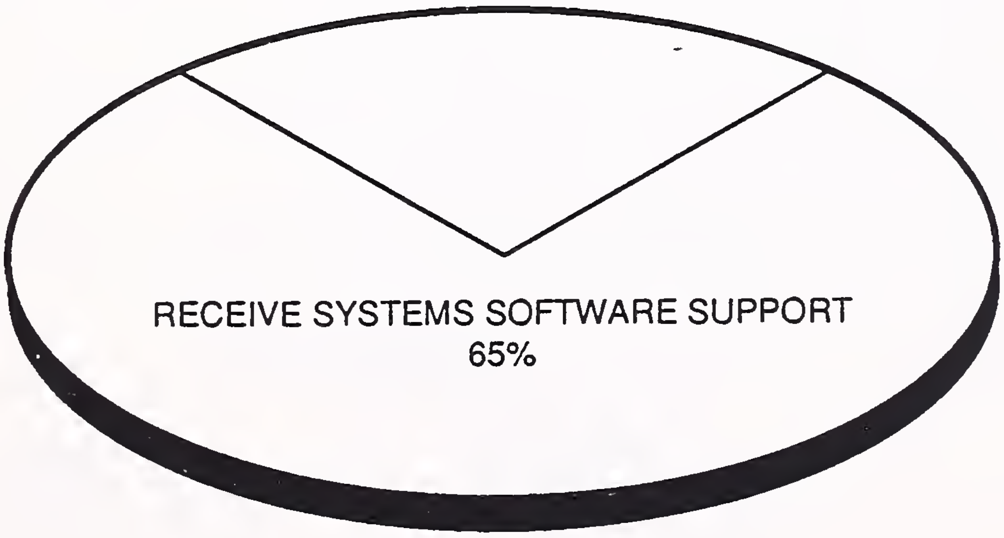
TPM USER SATISFACTION LEVELS DEC USERS/DEC SERVICE



SAMPLE = 162

EXHIBIT IV-10

TPM INVOLVEMENT IN SYSTEMS SOFTWARE SUPPORT DEC USERS/DEC SERVICE



SAMPLE = 162

EXHIBIT IV-11

TPM SYSTEMS SOFTWARE SUPPORT REQUIREMENT/PERFORMANCE LEVELS DEC USERS/DEC SERVICE

SYSTEMS SOFTWARE SUPPORT	USER RATING*		PERFORMANCE EXCEEDS (FAILS TO MEET) REQUIREMENT
	REQUIREMENT	PERFORMANCE	
On-Site Fixes	4.6	5.8	1.2
Phone Support	7.5	7.4	(0.1)
Remote Support	5.0	6.2	1.2
Training	6.0	6.7	0.7
Consulting	4.9	6.0	1.1
Mailed Revisions	7.9	7.8	(0.1)

*SCALE: 1 = LOW, 10 = HIGH

EXHIBIT IV-12

TPM SYSTEMS SOFTWARE SUPPORT PERFORMANCE VERSUS USER REQUIREMENT DEC USERS/DEC SERVICE

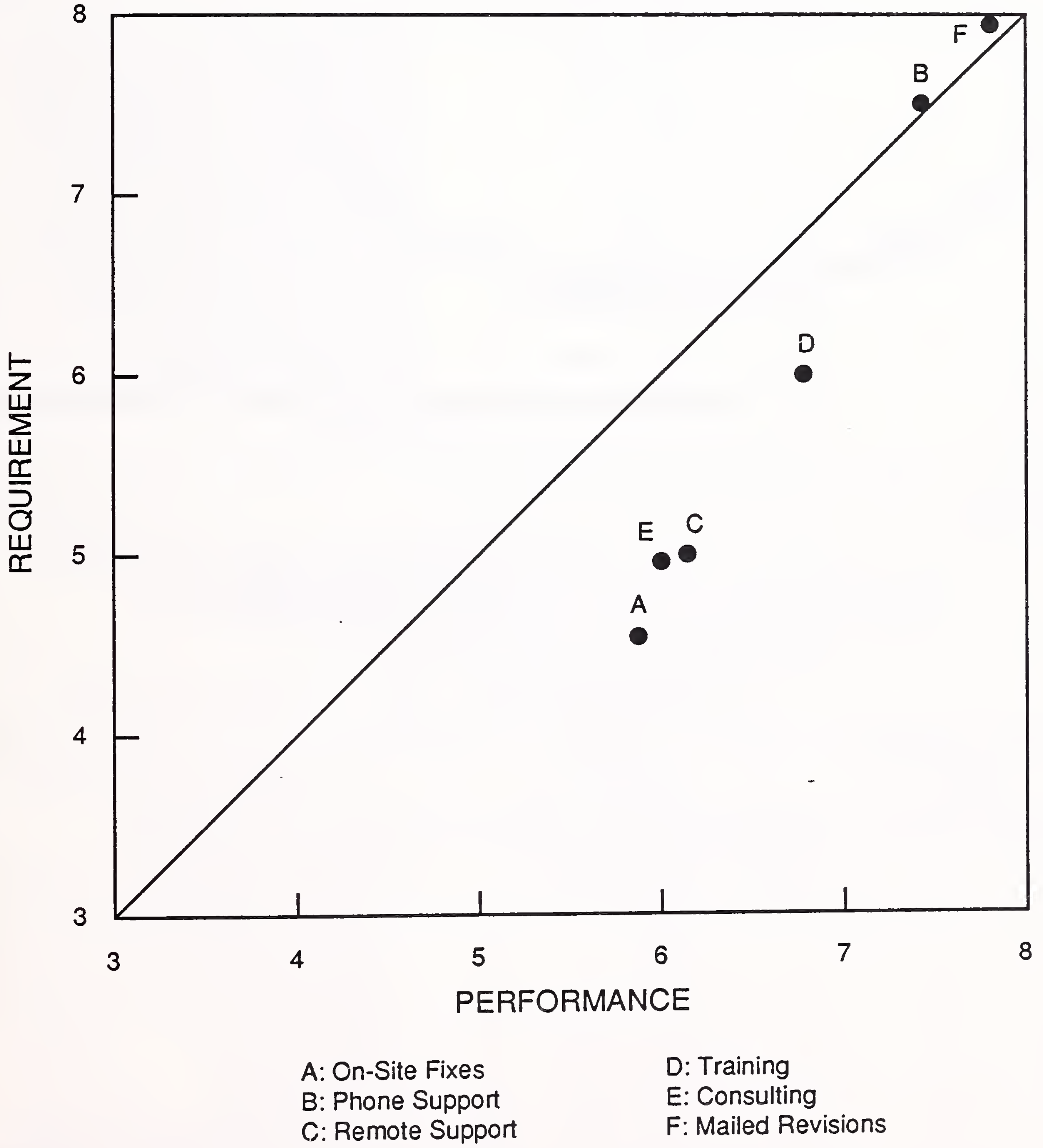


EXHIBIT IV-13

TPM USER SYSTEMS SOFTWARE SATISFACTION LEVELS DEC USERS/DEC SERVICE

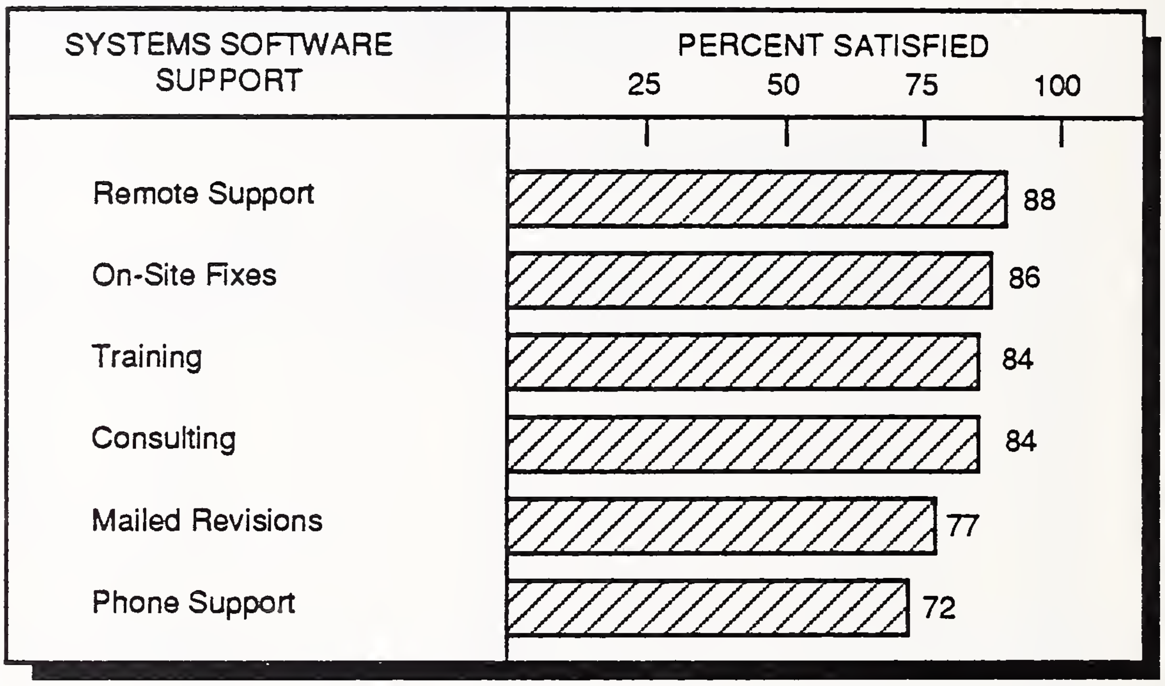
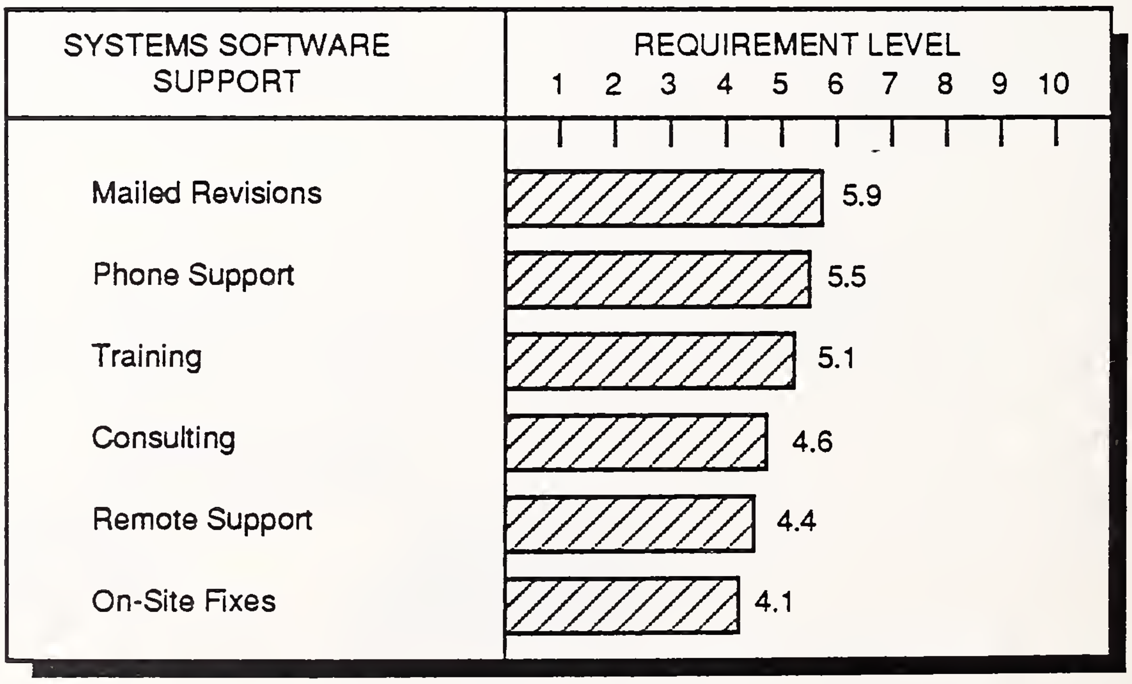


EXHIBIT IV-14

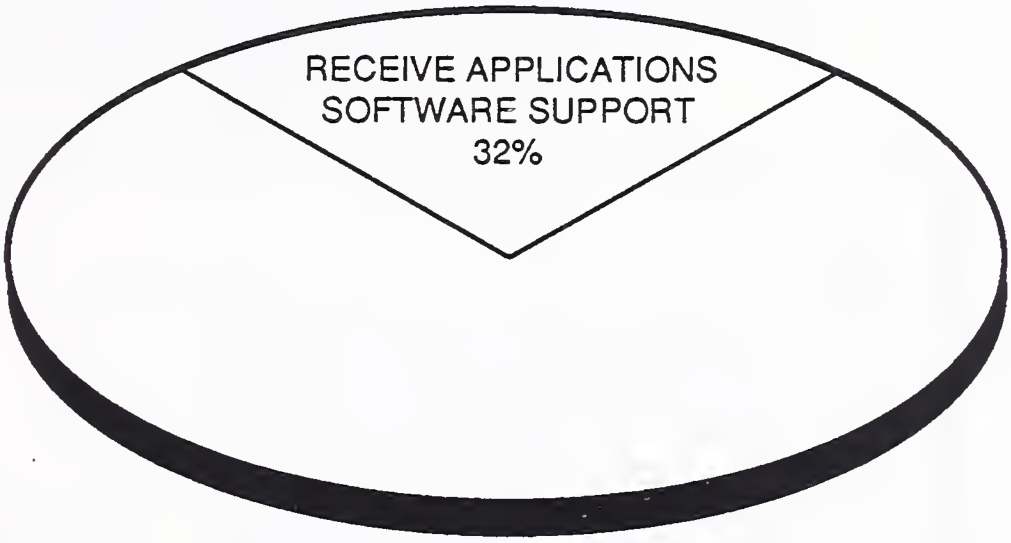
TPM SYSTEMS SOFTWARE SUPPORT OPPORTUNITY LEVELS DEC USERS/DEC SERVICE



REQUIREMENT LEVEL SCALE: 1 = LOW, 10 = HIGH

EXHIBIT IV-15

TPM INVOLVEMENT IN APPLICATIONS SOFTWARE SUPPORT DEC USERS/DEC SERVICE



SAMPLE = 162

EXHIBIT IV-16

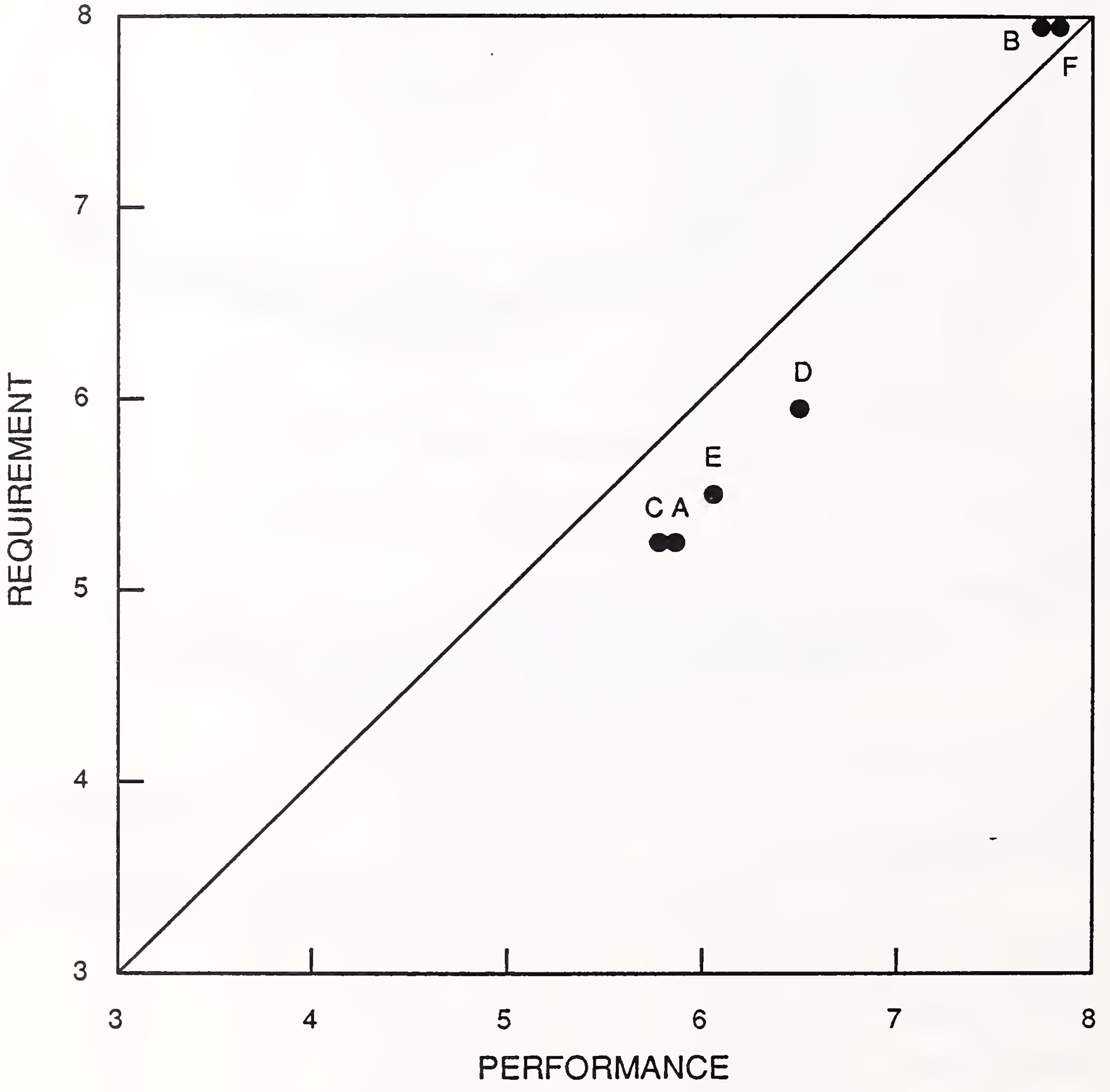
TPM APPLICATIONS SOFTWARE SUPPORT REQUIREMENT/PERFORMANCE LEVELS DEC USERS/DEC SERVICE

APPLICATIONS SOFTWARE SUPPORT	USER RATING*		PERFORMANCE EXCEEDS (FAILS TO MEET) REQUIREMENT
	REQUIREMENT	PERFORMANCE	
On-Site Fixes	5.3	5.8	0.5
Phone Support	7.9	7.7	(0.2)
Remote Support	5.3	5.7	0.4
Training	5.9	6.5	0.6
Consulting	5.5	6.1	0.6
Mailed Revisions	7.9	7.8	(0.1)

*SCALE: 1 = LOW, 10 = HIGH

EXHIBIT IV-17

TPM APPLICATIONS SOFTWARE SUPPORT PERFORMANCE VERSUS USER REQUIREMENT DEC USERS/DEC SERVICE



A: On-Site Fixes
B: Phone Support
C: Remote Support

D: Training
E: Consulting
F: Mailed Revisions

EXHIBIT IV-18

TPM APPLICATIONS SOFTWARE SUPPORT SATISFACTION LEVELS DEC USERS/DEC SERVICE

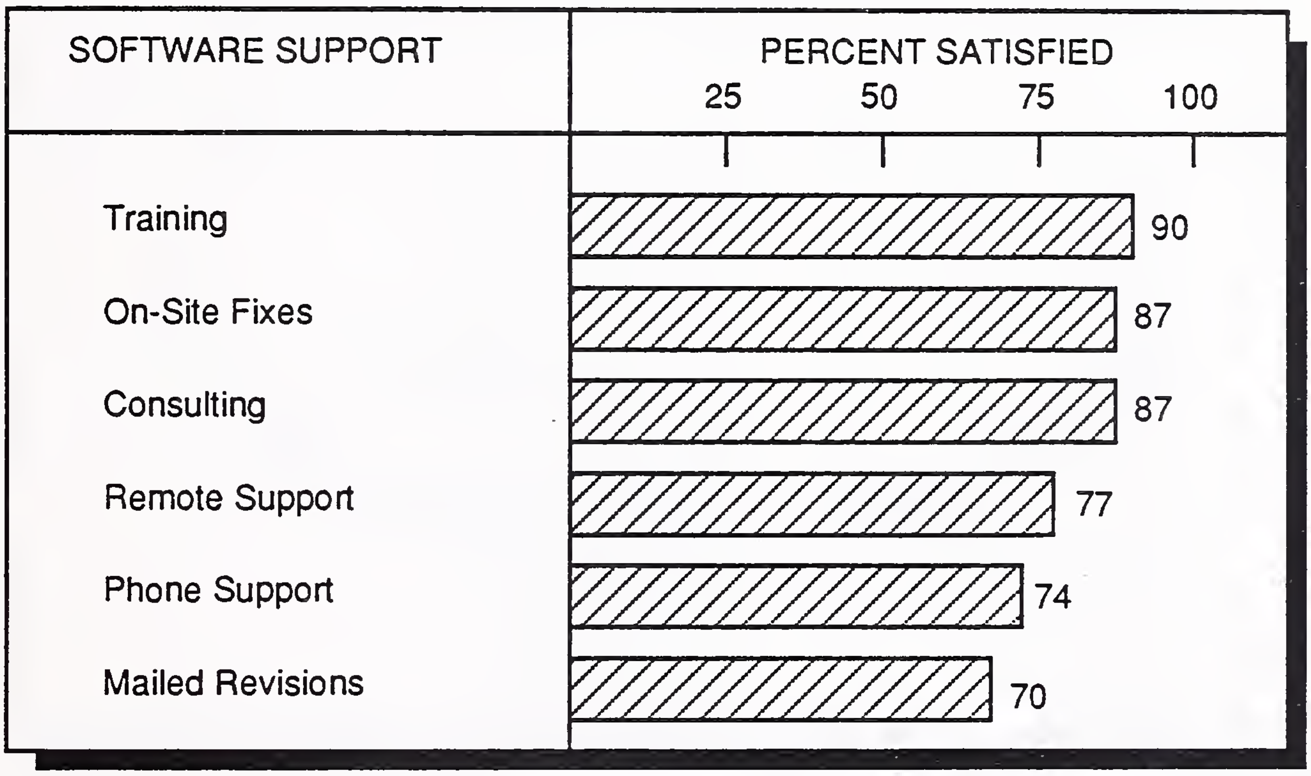
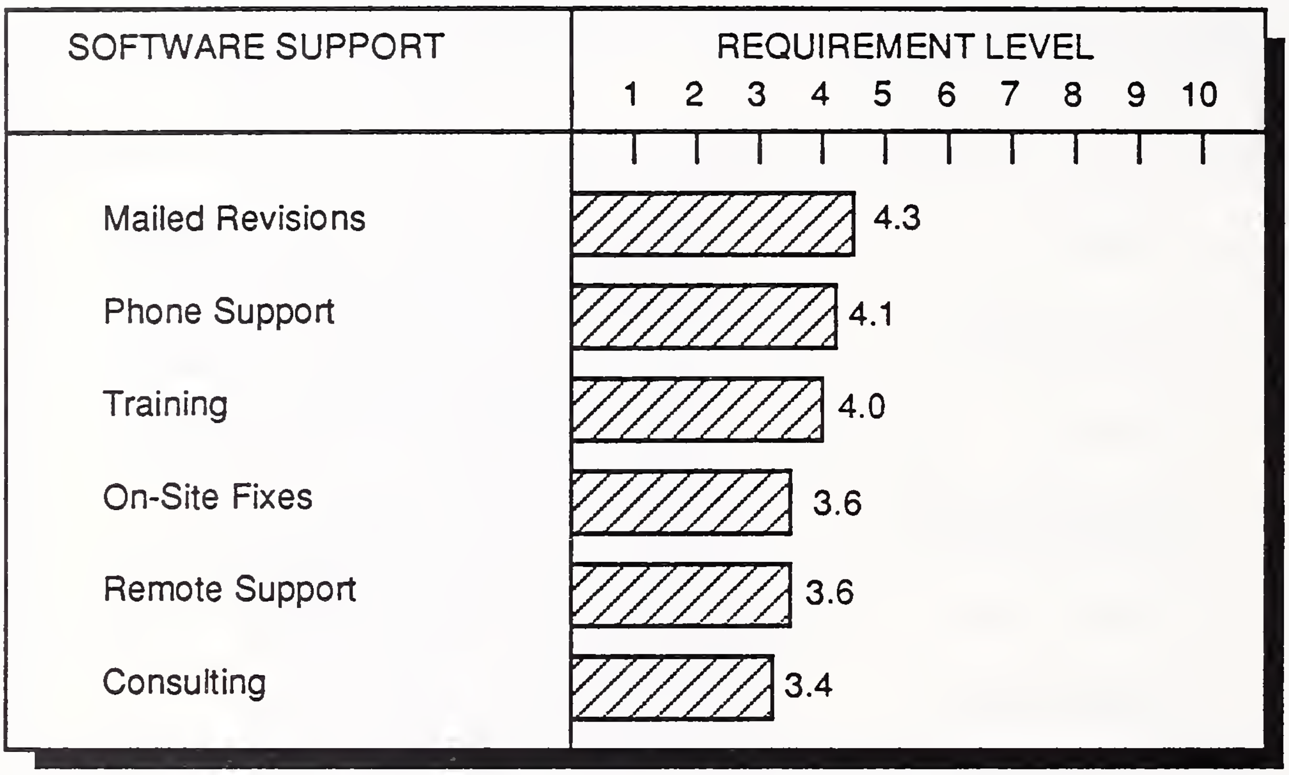


EXHIBIT IV-19

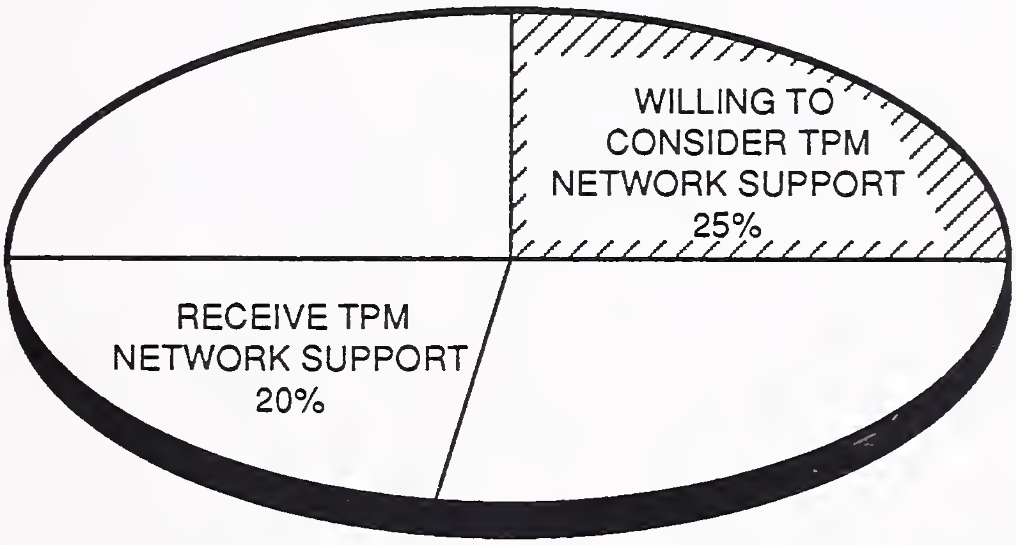
TPM APPLICATIONS SOFTWARE SUPPORT OPPORTUNITY LEVELS DEC USERS/DEC SERVICE



REQUIREMENT LEVEL SCALE : 1 = LOW, 10 = HIGH

EXHIBIT IV-20

THIRD-PARTY NETWORK SUPPORT OPPORTUNITY
DEC USERS/DEC SERVICE



SAMPLE = 80 NETWORK USERS

V

Analysis of DEC User Service Satisfaction–TPM Service

V

Analysis of DEC User Service Satisfaction–TPM Service

A

Introduction

Forty-one of the 210 DEC users surveyed (19.5% of the sample) used TPM as their primary source of service. This portion is almost double that of the entire market (1986 TPM portion of the market estimated at 9.8% of the U.S. customer services market), which can be explained by the fact that only DEC equipment users were contacted.

The types of firms used by these users fall into two general categories: traditional independent TPMs, such as CDC, GE, McDonnell Douglas and TRW; and distributors (often VARs and VADs, including CAD/CAM vendors that package DEC systems).

B

Analysis

According to Exhibit V-1, the TPM service users placed a greater emphasis on the TPM's ability to service a mixed-shop than the overall sample of DEC users. This may be a leftover result of traditional rationale for using TPMs. However, with the increase in third-party maintenance being performed by manufacturers, this reasoning is bound to diminish in importance. Still, these users emphasize service quality issues when choosing a TPM.

A reflection of the satisfaction that the TPM users reported with regard to the service that they received from their service vendors can be seen in Exhibit V-2, which shows that almost one-fourth of the TPM users expected to increase their usage of TPM while only 5% expected to decrease their usage.

Exhibit V-3 demonstrates that TPM responsiveness exceeds the needs of the users. Indeed, over three-fourths of this sample of TPM users were satisfied with the response time that they received (shown in Exhibit V-6).

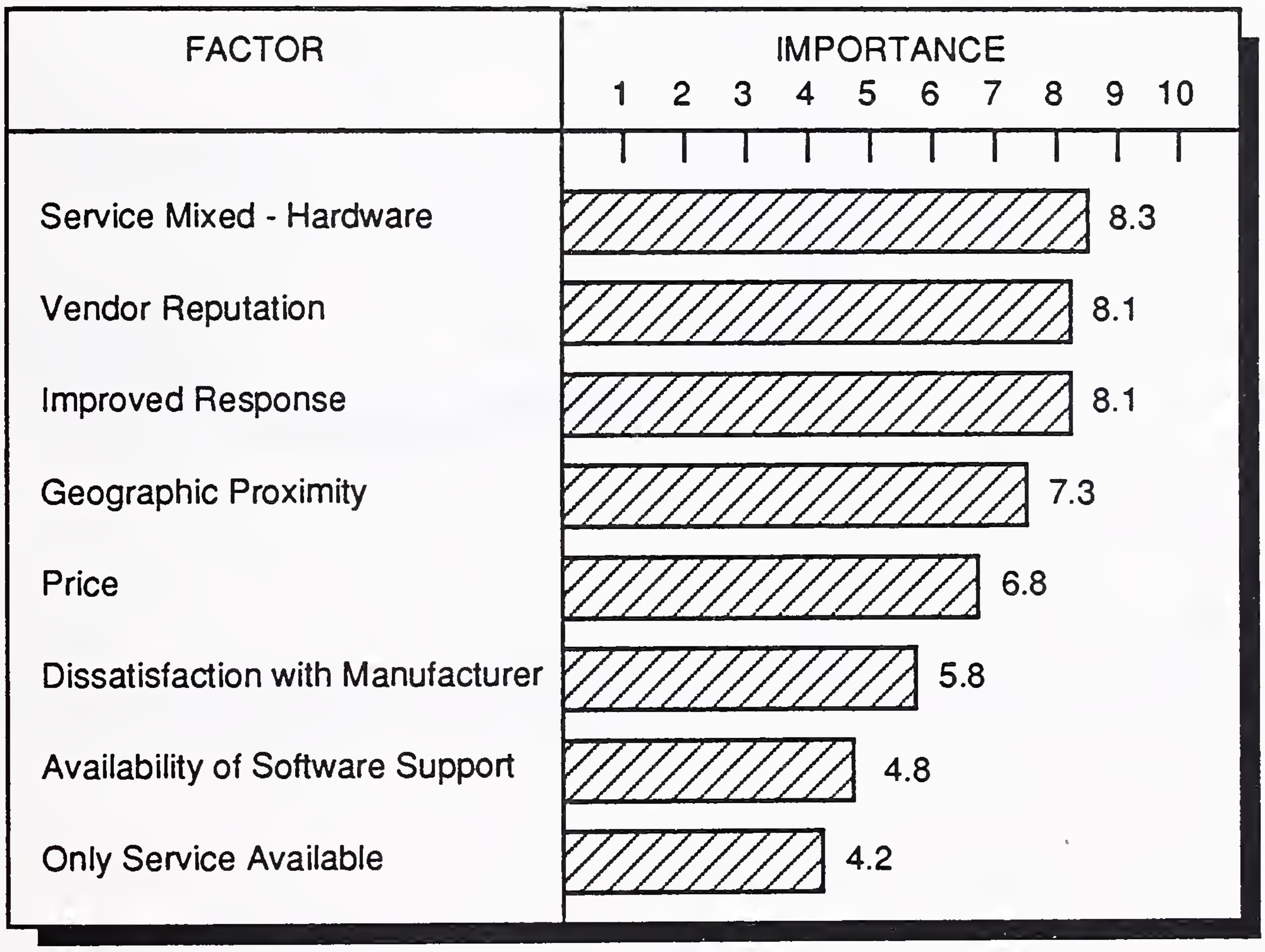
TPMs were less successful in the area of repair time, satisfying only 60% of the sample. Primary contributor to the problem may be parts availability, an area of major concern with all users but particularly TPM customers and prospects. To be fair, all users, including those of manufacturer-supplied service, report concern over spares availability and its effect on downtime (only 49% of the 1987 small systems users were satisfied with their manufacturer's performance in this area).

TPMs performed extremely well in the professional services, as shown in Exhibits V-7 through V-9. TPMs should attempt to increase the visibility of these key service areas and thus the the importance users place upon them. In this way, TPMs would be able to increase overall user satisfaction with their support and even provide the foundation for new service revenue opportunities, particularly if the TPMs could market such planning and consulting activities as performance improvement services.

One such area of opportunity is network planning and support. Exhibit V-20 shows that while 29% of the TPM sample that used networks already relied on TPMs for support, only 6% of the remaining users would consider TPM support in the future. Obviously, there is a perceptual problem that needs to be overcome if TPMs are to break out of their "hardware maintainers only" image with these users. TPMs will need to market their existing expertise in network support.

EXHIBIT V-1

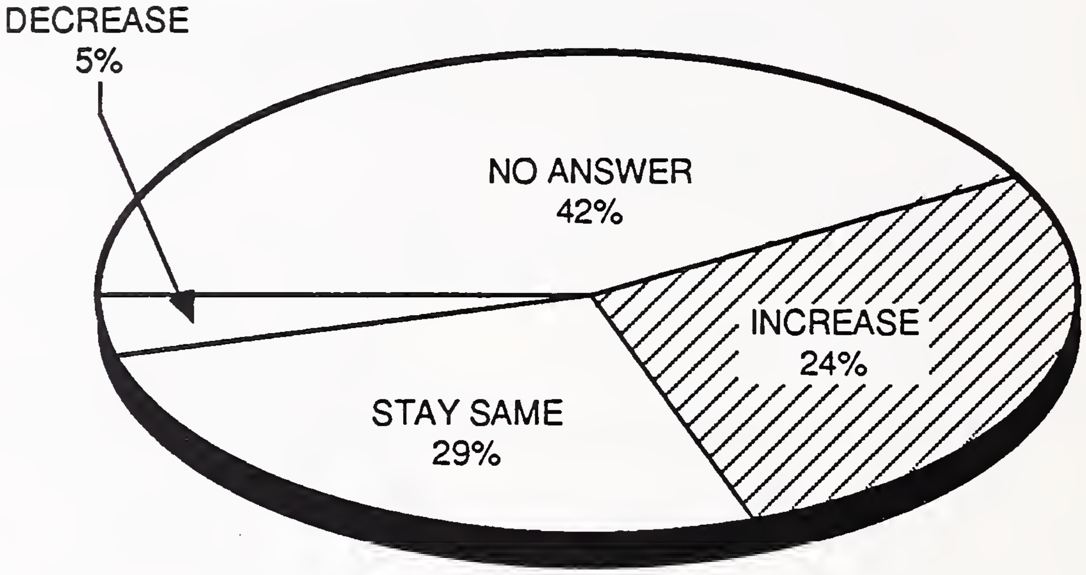
THIRD-PARTY MAINTENANCE SELECTION CRITERIA DEC USERS/ALL TPM SERVICE



SAMPLE = 41

EXHIBIT V-2

FUTURE TPM USAGE EXPECTATIONS DEC USERS/ALL TPM SERVICE



SAMPLE = 41

EXHIBIT V-3

TPM VENDOR RESPONSIVENESS DEC USERS/ALL TPM SERVICE

CRITERIA	PERFORMANCE (HOURS)
Response Time Required	4.0
Response Time Received	3.5
Repair Time Required	6.6
Repair Time Received	6.1

SAMPLE = 41

EXHIBIT V-4

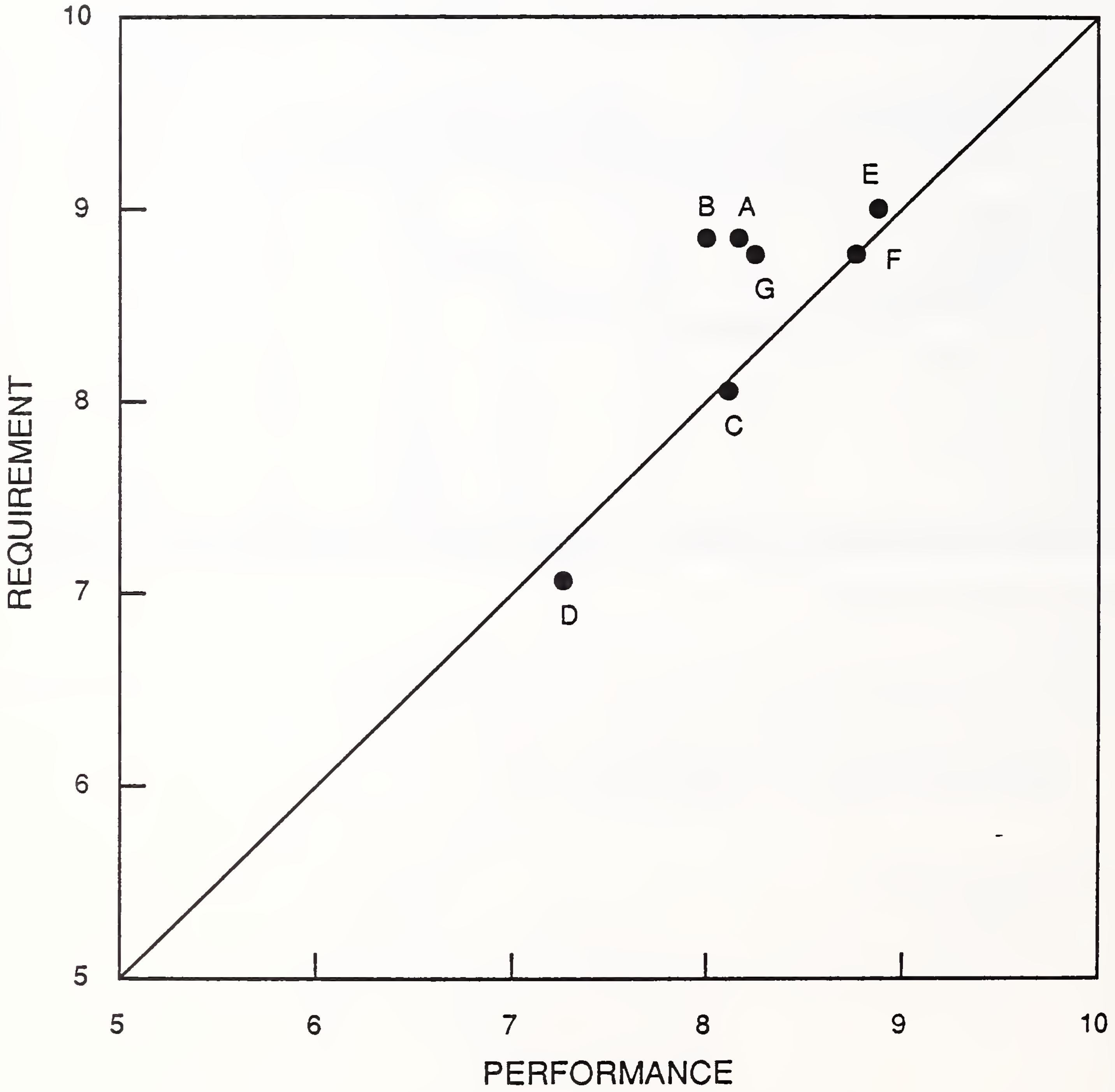
TPM HARDWARE MAINTENANCE REQUIREMENT/PERFORMANCE LEVELS DEC USERS/ALL TPM SERVICE

HARDWARE MAINTENANCE AREA	USER RATING*		PERFORMANCE EXCEEDS (FALLS BELOW) REQUIREMENT
	REQUIREMENT	PERFORMANCE	
FE Skill Level	8.8	8.2	(0.6)
Parts Availability	8.8	8.0	(0.8)
Dispatching	8.1	8.2	0.1
Contract Flexibility	7.1	7.5	0.4
Overall Quality	9.0	8.8	(0.2)
Response Time	8.7	8.7	-
Repair Time	8.7	8.3	(0.4)

*SCALE: 1 = LOW, 10 = HIGH
SAMPLE = 41

EXHIBIT V-5

TPM HARDWARE MAINTENANCE PERFORMANCE VERSUS USER REQUIREMENT DEC USERS/ALL TPM SERVICE

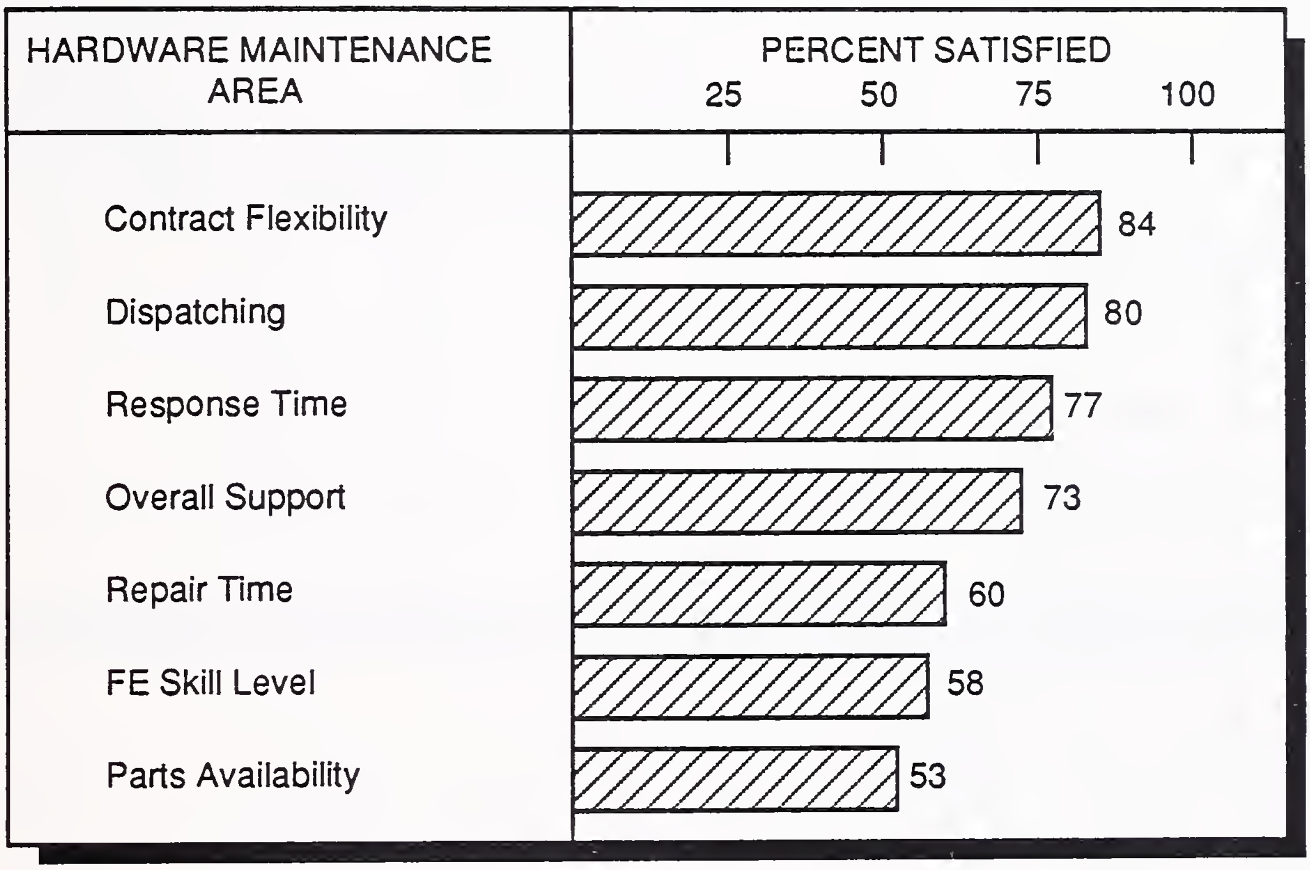


A: FE Skill Level
B: Parts Availability
C: Dispatching
D: Contract Flexibility

E: Overall Quality
F: Response Time
G: Repair Time

EXHIBIT V-6

TPM HARDWARE MAINTENANCE SATISFACTION LEVELS DEC USERS/ALL TPM SERVICE



SAMPLE = 41

EXHIBITV -7

TPM VENDOR
REQUIREMENT/PERFORMANCE LEVELS
DEC USERS/ALL TPM SERVICE

SERVICE	USER RATING*		PERFORMANCE EXCEEDS (FALLS BELOW) REQUIREMENT
	REQUIREMENT	PERFORMANCE	
Professional Services	4.3	6.6	2.3
Training	5.0	6.5	1.5
Add-On/Supplies Sales	5.1	6.5	1.4
Relocation/Deinstalls	5.1	6.4	1.3
Conversion/Upgrades	6.7	7.6	0.9

*SCALE: 1 = LOW, 10 = HIGH
SAMPLE = 41

EXHIBIT V-8

TPM VENDOR
PERFORMANCE VERSUS USER REQUIREMENT
DEC USERS/ALL TPM SERVICE

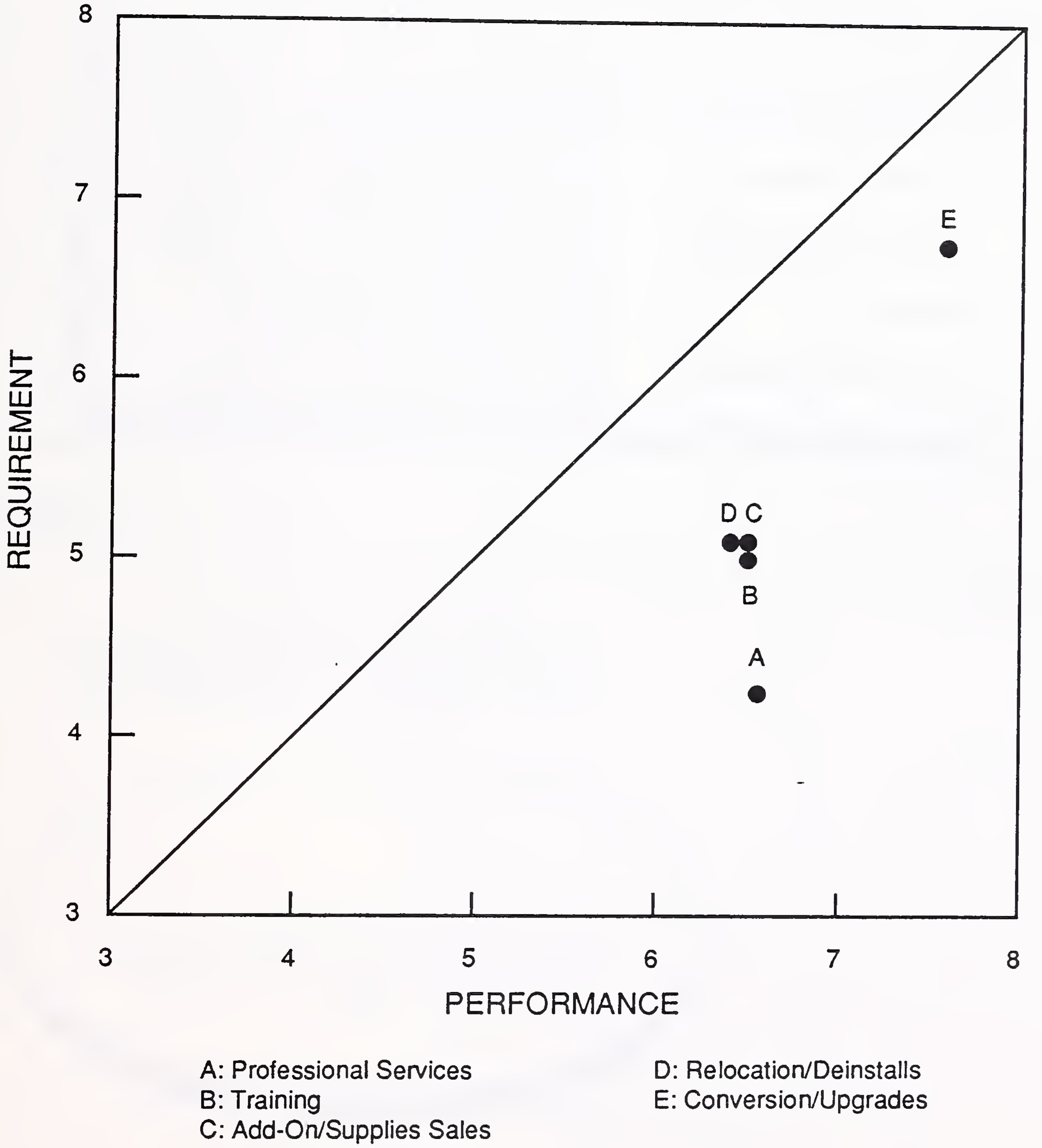
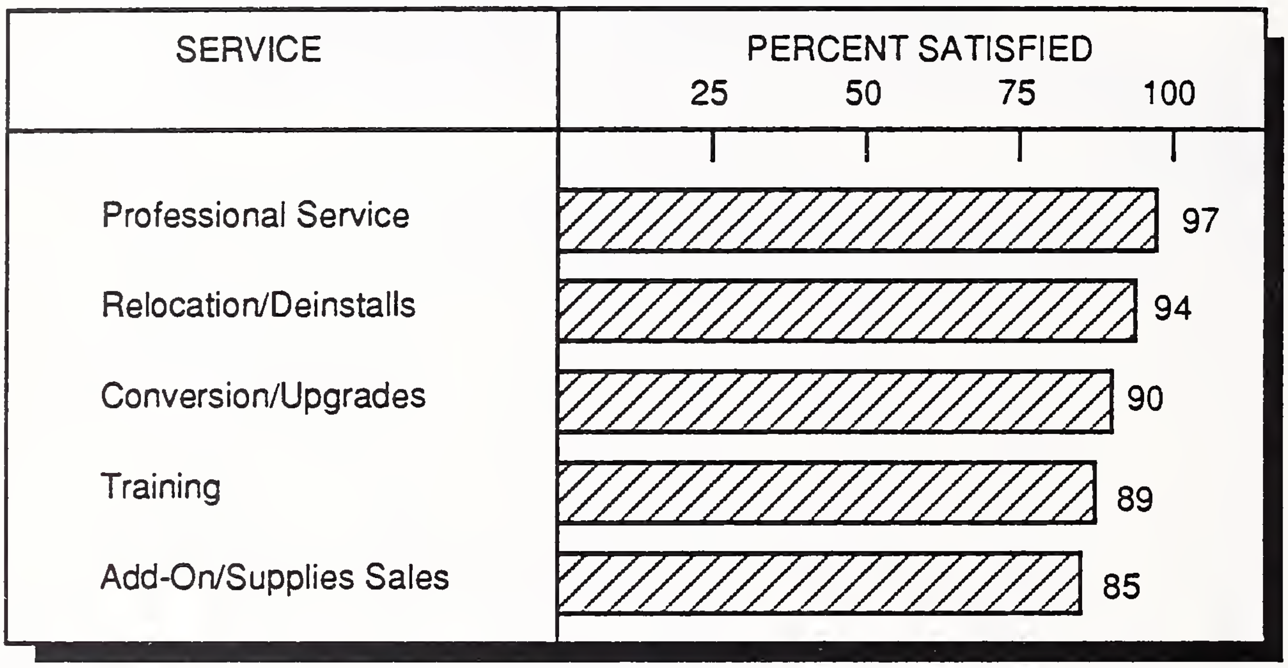


EXHIBIT V-9

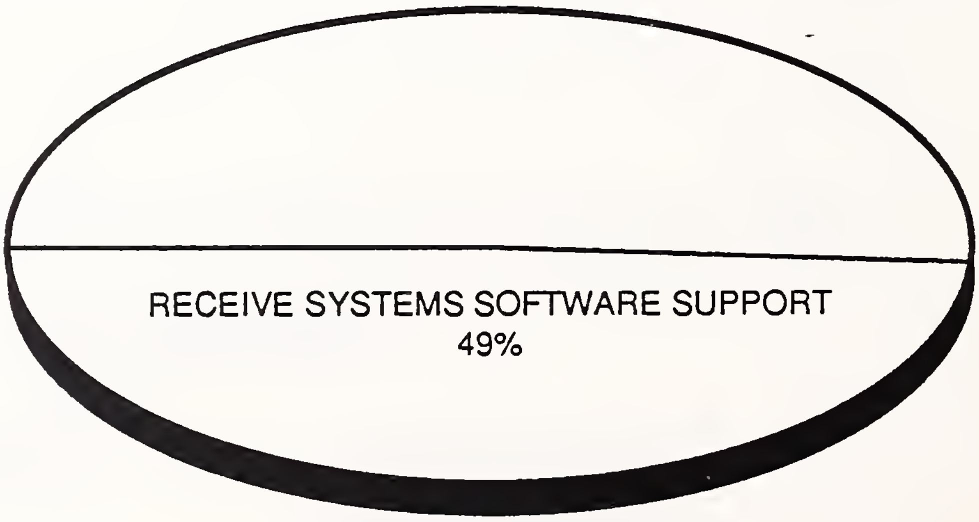
TPM USER SATISFACTION LEVELS DEC USERS/ALL TPM SERVICE



SAMPLE = 41

EXHIBIT V-10

TPM INVOLVEMENT IN SYSTEMS SOFTWARE SUPPORT DEC USERS/ALL TPM SERVICE



SAMPLE = 41

EXHIBIT V-11

TPM SYSTEMS SOFTWARE SUPPORT REQUIREMENT/PERFORMANCE LEVELS DEC USERS/ALL TPM SERVICE

SYSTEMS SOFTWARE SUPPORT	USER RATING*		PERFORMANCE EXCEEDS (FAILS TO MEET) REQUIREMENT
	REQUIREMENT	PERFORMANCE	
On-Site Fixes	4.2	5.7	1.5
Phone Support	6.8	7.0	0.2
Remote Support	4.8	5.8	1.0
Training	5.5	6.3	0.8
Consulting	4.7	5.9	1.2
Mailed Revisions	7.8	7.1	(0.7)

*SCALE: 1 = LOW, 10 = HIGH
SAMPLE = 41

EXHIBIT V-12

TPM SYSTEMS SOFTWARE SUPPORT PERFORMANCE VERSUS USER REQUIREMENT DEC USERS/ALL TPM SERVICE

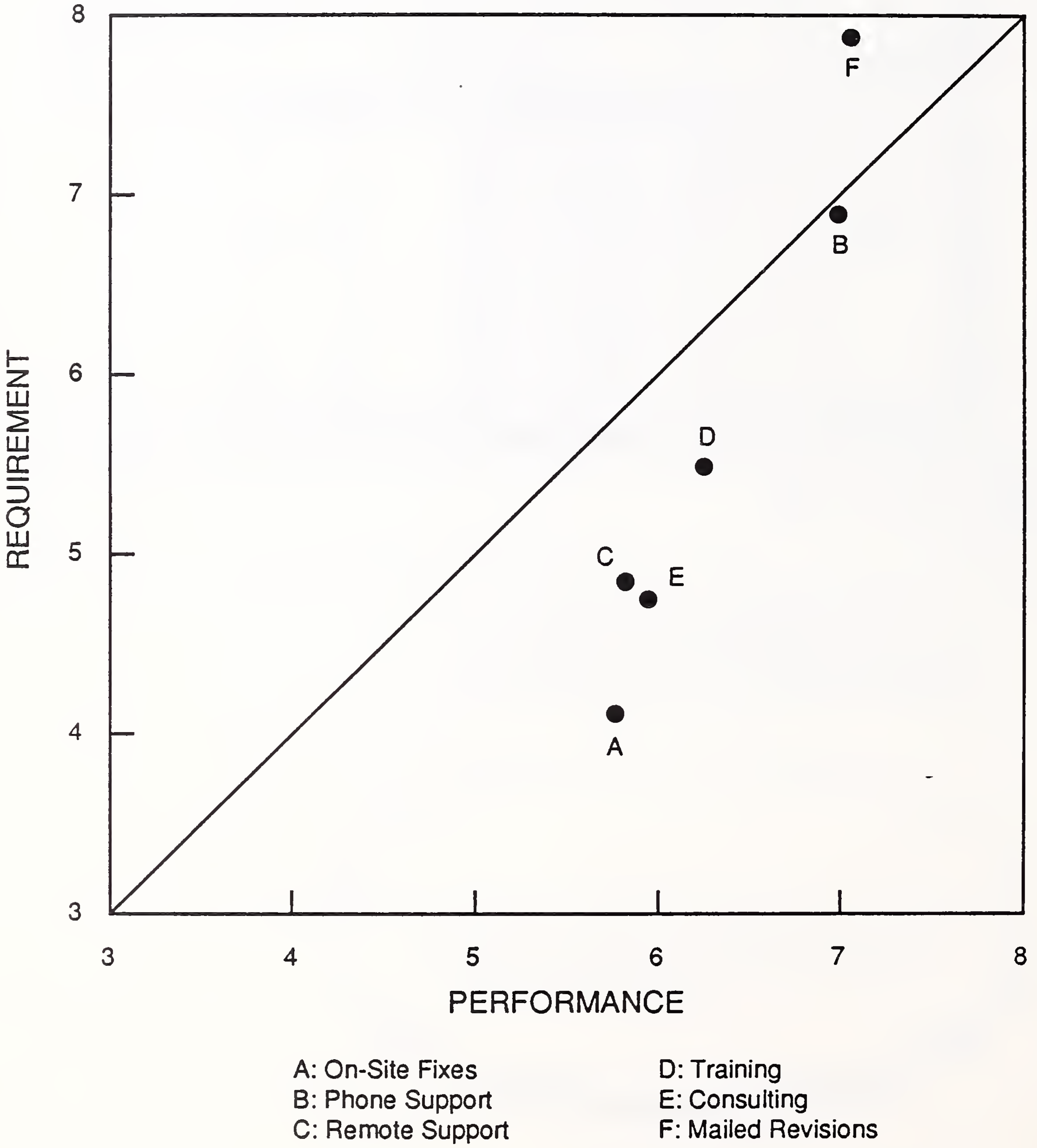
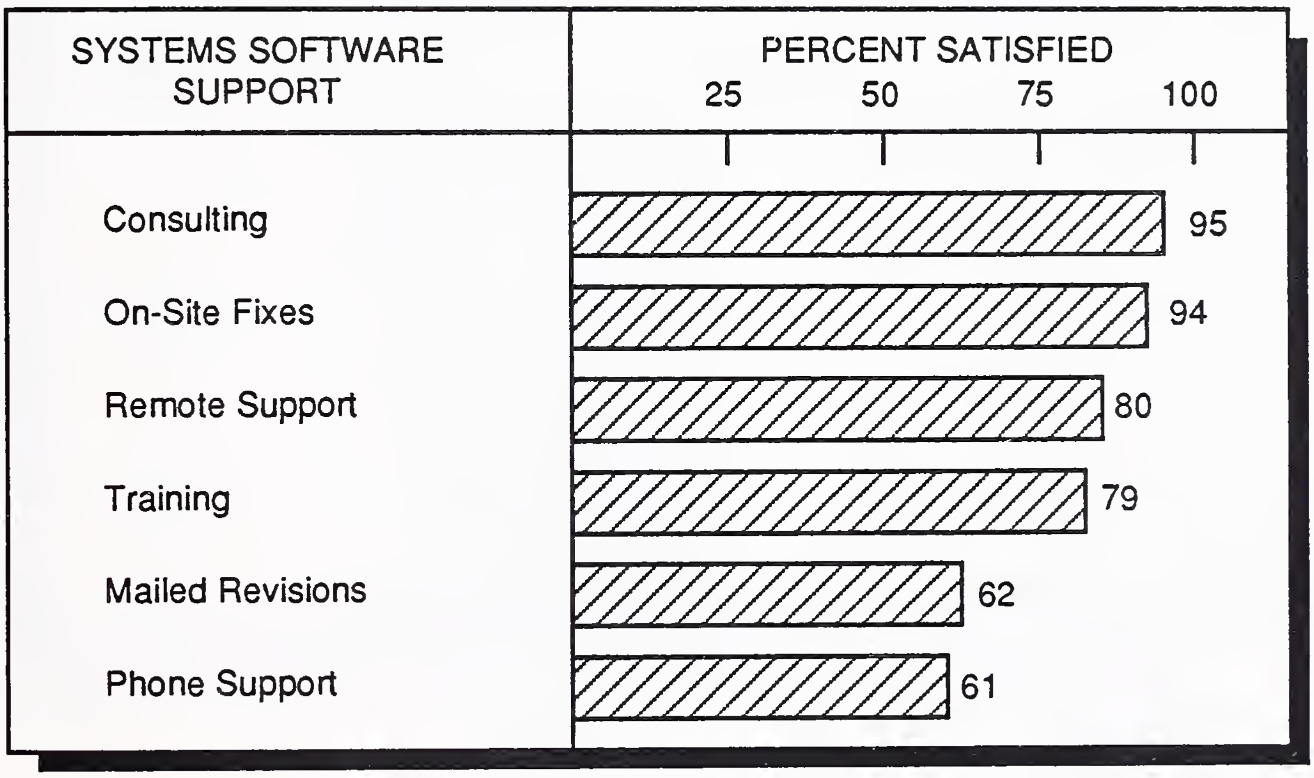


EXHIBIT V-13

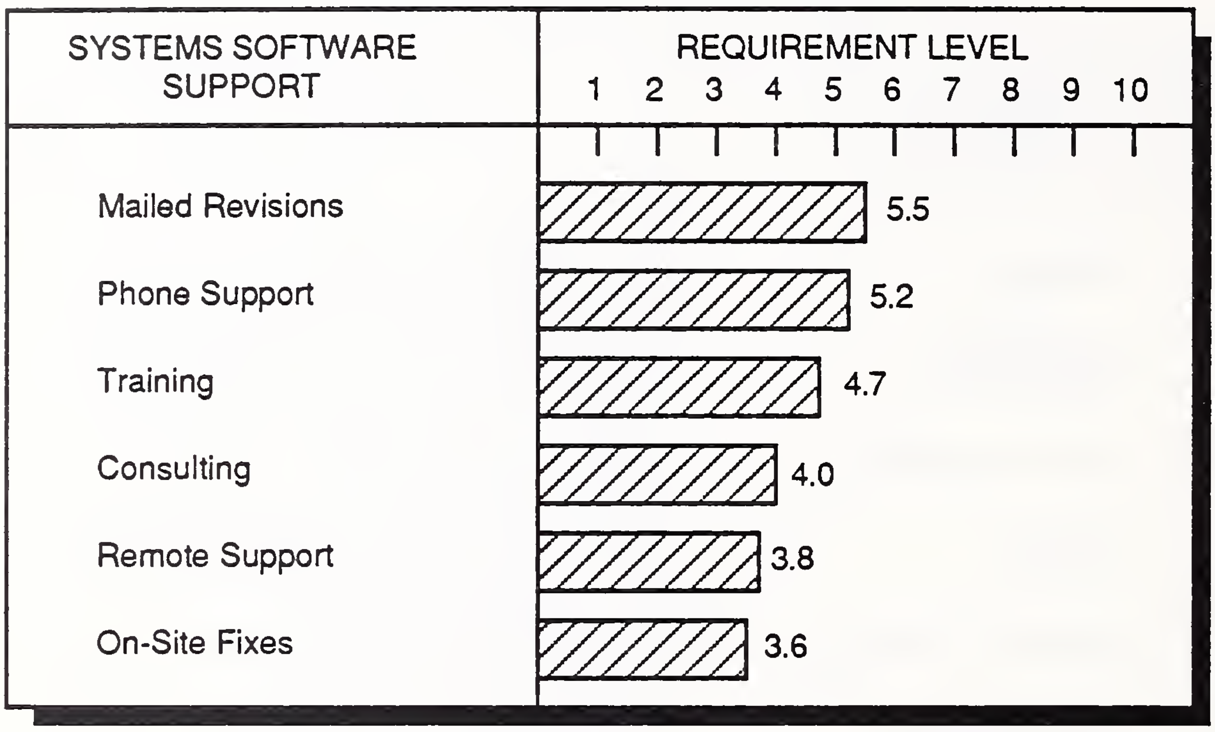
TPM USER SYSTEMS SOFTWARE SATISFACTION LEVELS DEC USERS/ALL TPM SERVICE



SAMPLE = 41

EXHIBIT V-14

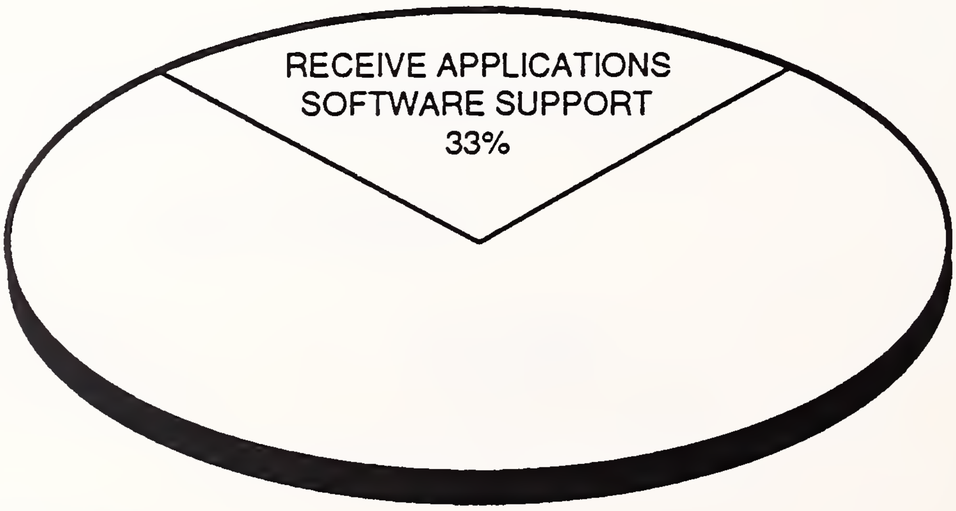
TPM SYSTEMS SOFTWARE SUPPORT OPPORTUNITY LEVELS DEC USERS/ALL TPM SERVICE



REQUIREMENT LEVEL SCALE: 1 = LOW, 10 = HIGH
SCALE = 41

EXHIBIT V-15

TPM INVOLVEMENT IN APPLICATIONS SOFTWARE SUPPORT DEC USERS/ALL TPM SERVICE



SAMPLE = 41

EXHIBIT V-16

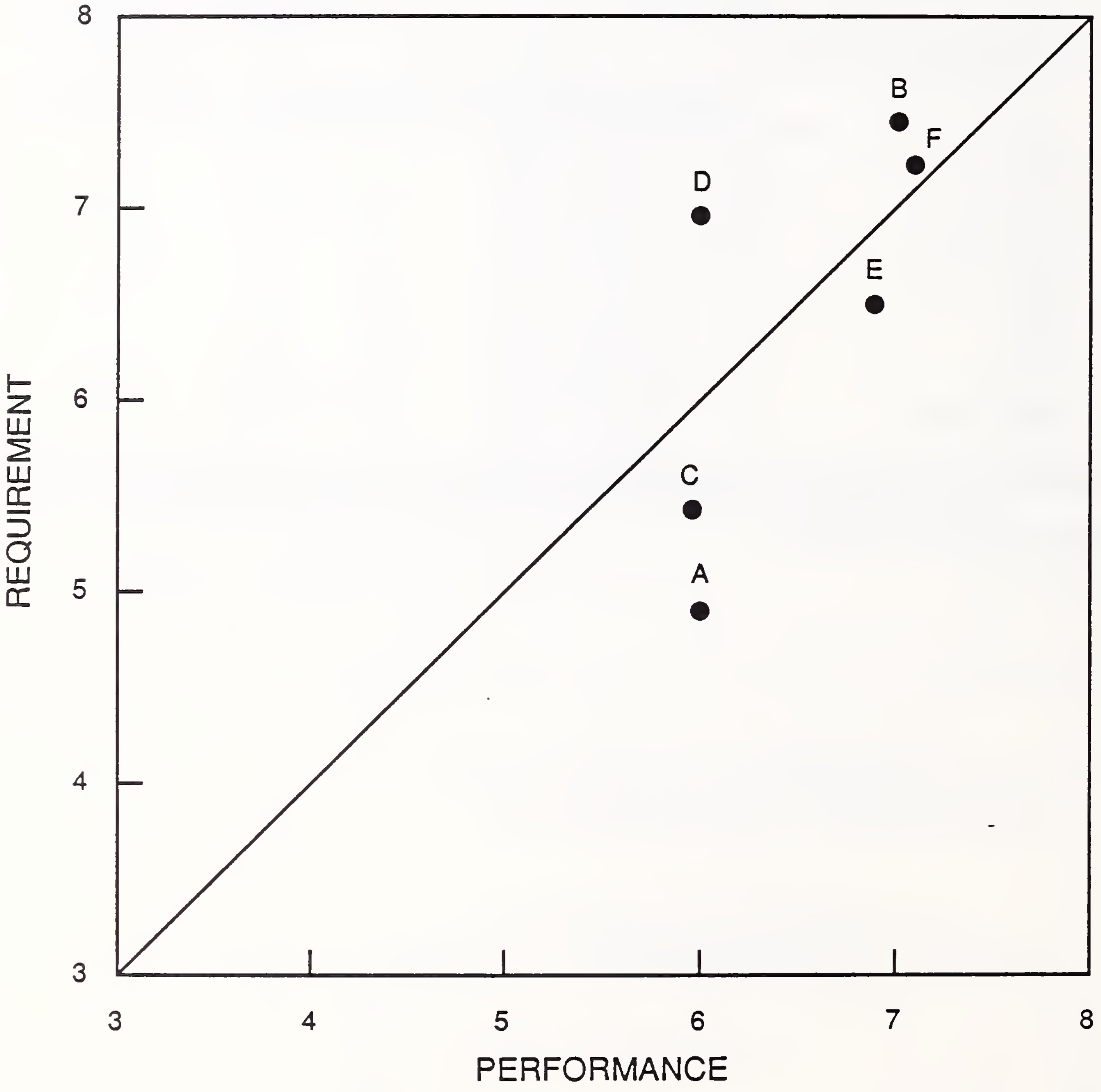
TPM APPLICATIONS SOFTWARE SUPPORT REQUIREMENT/PERFORMANCE LEVELS DEC USERS/ALL TPM SERVICE

APPLICATIONS SOFTWARE SUPPORT	USER RATING*		PERFORMANCE EXCEEDS (FAILS TO MEET) REQUIREMENT
	REQUIREMENT	PERFORMANCE	
On-Site Fixes	4.8	6.0	1.2
Phone Support	7.4	7.0	(0.4)
Remote Support	5.4	5.9	0.5
Training	6.9	6.0	(0.9)
Consulting	6.5	6.8	0.3
Mailed Revisions	7.3	7.1	(0.2)

*SCALE: 1 = LOW, 10 = HIGH
SAMPLE = 41

EXHIBIT V-17

TPM APPLICATIONS SOFTWARE SUPPORT PERFORMANCE VERSUS USER REQUIREMENT DEC USERS/ALL TPM SERVICE

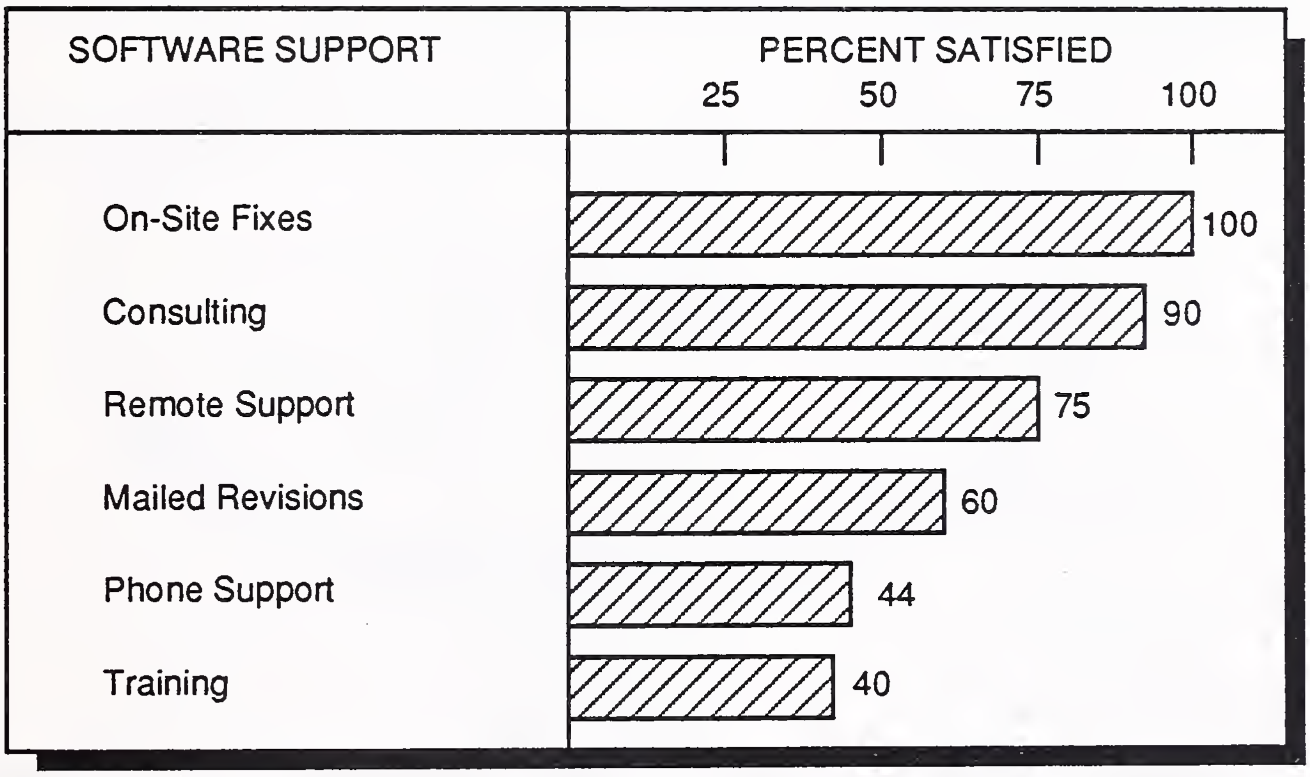


A: On-Site Fixes
B: Phone Support
C: Remote Support

D: Training
E: Consulting
F: Mailed Revisions

EXHIBIT V-18

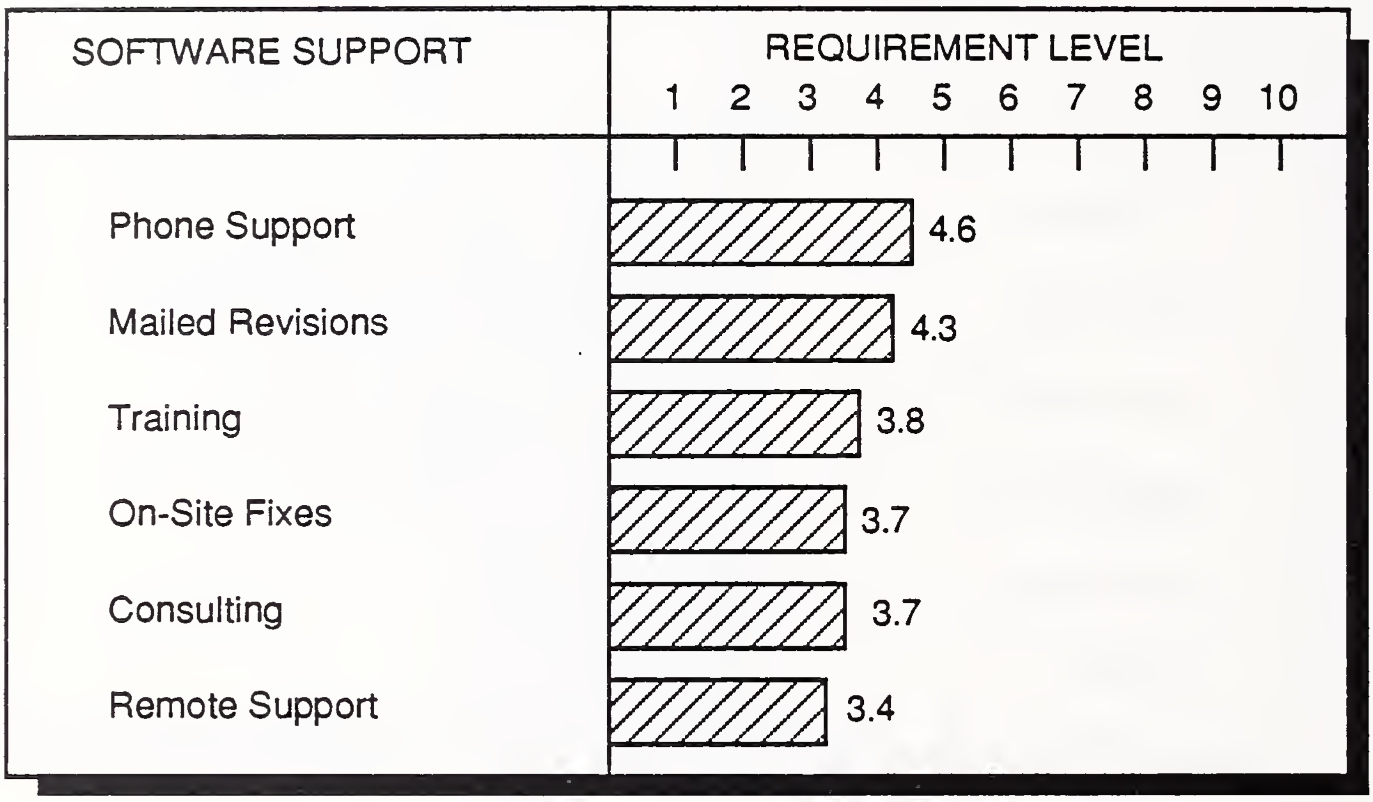
TPM APPLICATIONS SOFTWARE SUPPORT SATISFACTION LEVELS DEC USERS/ALL TPM SERVICE



SAMPLE = 41

EXHIBIT V-19

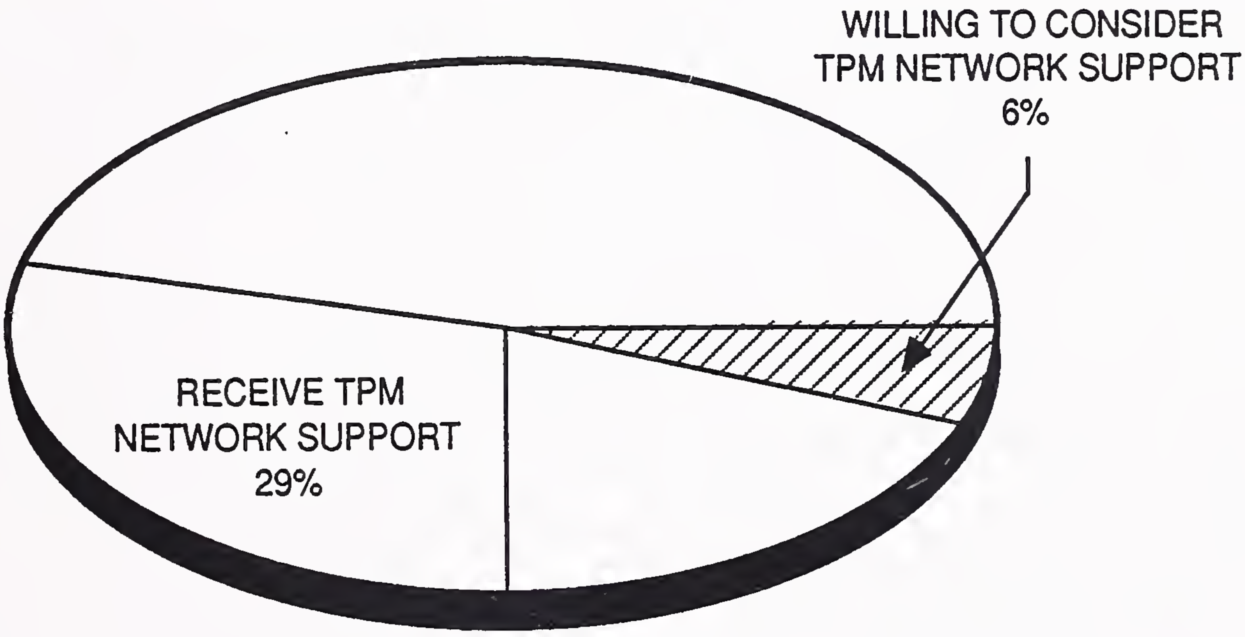
TPM APPLICATIONS SOFTWARE SUPPORT OPPORTUNITY LEVELS DEC USERS/ALL TPM SERVICE



REQUIREMENT LEVEL SCALE: 1 = LOW, 10 = HIGH
SAMPLE = 41

EXHIBIT V-20

THIRD-PARTY NETWORK SUPPORT OPPORTUNITY DEC USERS/ALL TPM SERVICE



SAMPLE = 17 NETWORK USERS

VI

Analysis of DEC User Service–CDC Service

VI

Analysis of DEC User Service–CDC Service

A

Introduction

Thirteen of the 41 users of TPM received their service from CDC. This is not surprising, since CDC has been involved in the DEC equipment maintenance market since the early seventies. CDC now provides one of the most extensive service offerings for DEC products, both in terms of products supported and types of service offered. For example, CDC was the first major TPM to offer service on the new VAX 8XXX family of super minis as well as the only major TPM to offer third-party software support on DEC (and IBM) software.

B

Analysis

CDC TPM service customers place a premium on the service vendor's ability to support mixed-shop user sites, rating that ability an 8.9 on a scale of 10 in importance. These users also rate service quality issues of response time (8.4), proximity (8.3), and vendor reputation (8.2) significantly higher than other factors, including price (6.8).

Vendor responsiveness is a key factor to CDC users, and CDC manages to satisfy 85% of their users' needs in the area of response time (shown in Exhibit VI-6). CDC response time was 3.3 hours (versus a user requirement of 3.8 hours), which exceeded every vendor grouping of user responses including the DEC service users. CDC should be able to emphasize this ability in marketing its service performance.

CDC is slightly less successful in the area of repair time; even though CDC performance (5.4 hours) beats the user reported goal of 5.7 hours, CDC satisfies only 69% of its users in this area. Still, this performance is better than that reported by the DEC customers and should be communicated to prospective TPM customers.

As with all service organizations, particularly TPMs, CDC users place greatest concern on parts availability. Still, CDC's size and experience in the market should counter much of this concern.

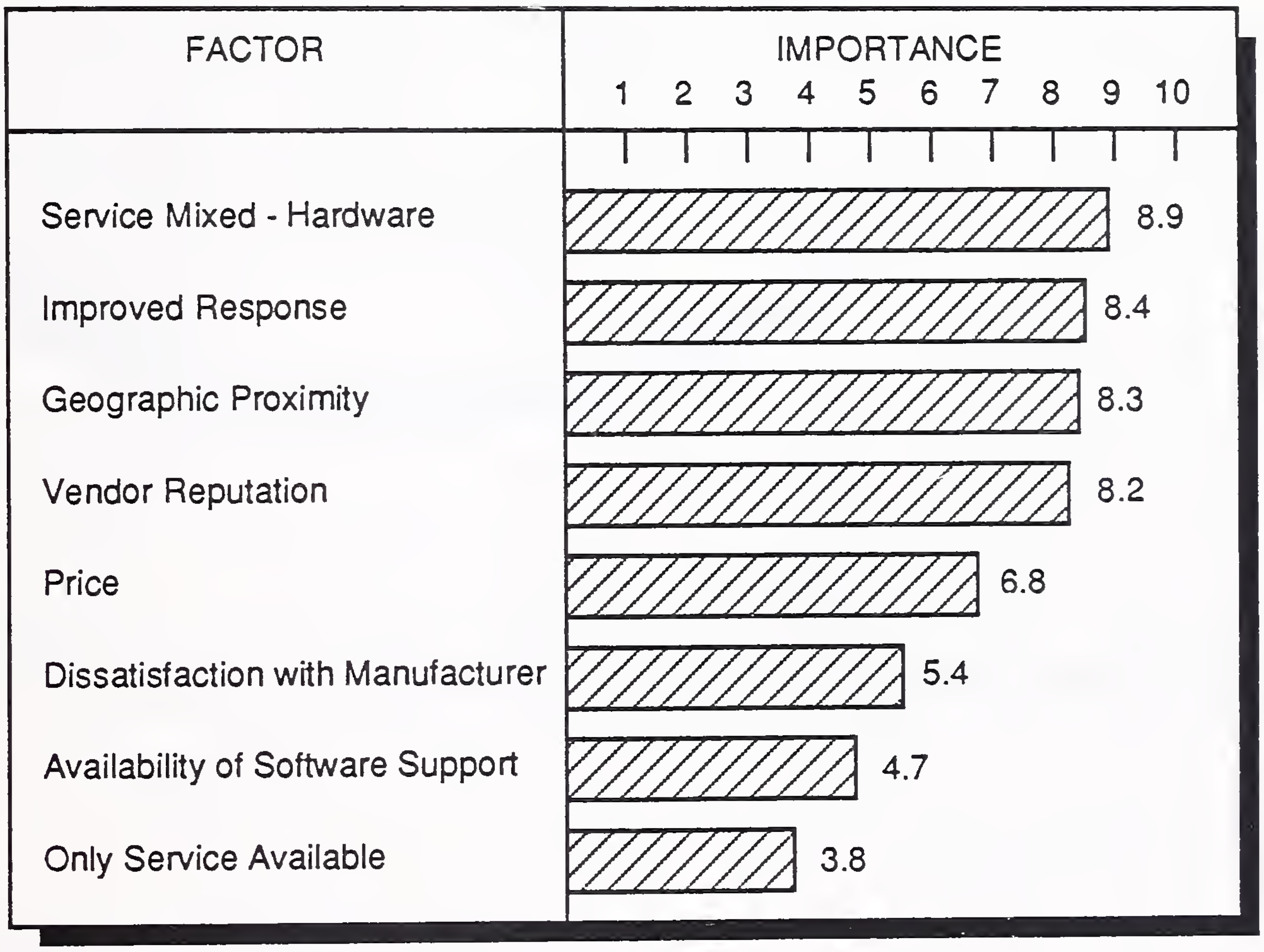
CDC should also play off of its strength as both a manufacturer and a large user of computer equipment and emphasize its capabilities in the professional services areas of consulting and planning. These areas not only provide new revenue opportunities, but also increase user satisfaction with more traditional service activities. In this fashion, the service offering becomes less reactive, less remedial in nature, and more performance oriented.

CDC already receives high marks for their service in these areas (shown in Exhibits VI-7 through VI-9). All that is needed is a concerted marketing effort that increases user perception of the value of such services, particularly as a way of increasing system performance.

While CDC has taken the most aggressive entrance into software support of any major TPM, the small sample size prohibited careful analysis of user satisfaction with such services in this study. Even though initial user reaction reportedly has been mixed, CDC is gaining experience that will prove invaluable when manufacturers price hardware maintenance at "price-leader" levels. By that time, CDC's experience as a true "full-service provider" will help differentiate CDC's service from other TPMs that service only hardware.

EXHIBIT VI-1

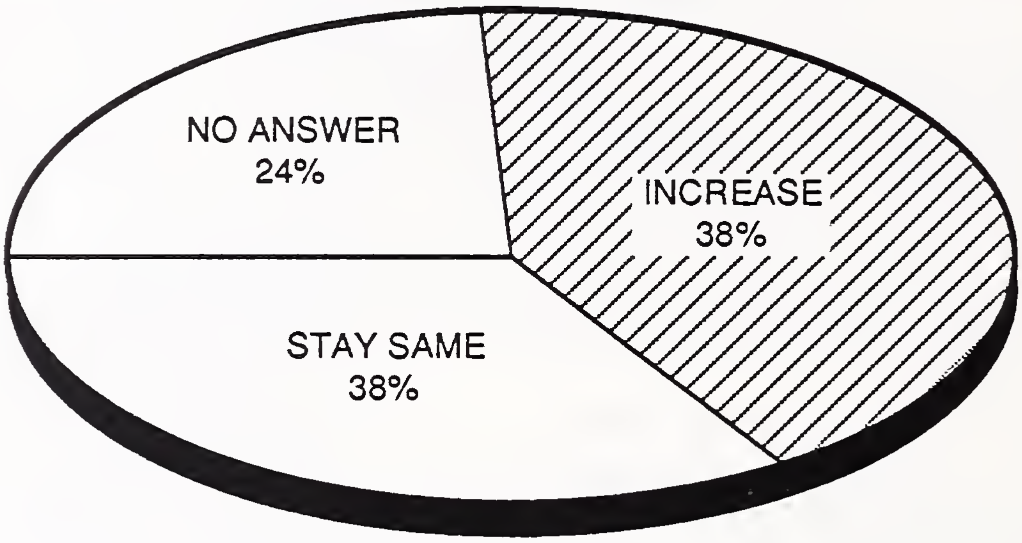
THIRD-PARTY MAINTENANCE SELECTION CRITERIA
DEC USERS/CDC SERVICE



SAMPLE = 13

EXHIBIT VI-2

FUTURE TPM USAGE EXPECTATIONS DEC USERS/CDC SERVICE



SAMPLE = 13

EXHIBIT VI-3

TPM VENDOR RESPONSIVENESS DEC USERS/CDC SERVICE

CRITERIA	PERFORMANCE (HOURS)
Response Time Required	3.8
Response Time Received	3.3
Repair Time Required	5.7
Repair Time Received	5.4

SAMPLE = 13

EXHIBIT VI-4

TPM HARDWARE MAINTENANCE REQUIREMENT/PERFORMANCE LEVELS DEC USERS/CDC SERVICE

HARDWARE MAINTENANCE AREA	USER RATING*		PERFORMANCE EXCEEDS (FALLS BELOW) REQUIREMENT
	REQUIREMENT	PERFORMANCE	
FE Skill Level	8.4	8.5	0.1
Parts Availability	8.9	8.1	(0.8)
Dispatching	8.3	8.5	0.2
Contract Flexibility	7.3	8.2	0.9
Overall Quality	9.2	9.0	(0.2)
Response Time	8.5	9.2	0.7
Repair Time	8.9	8.8	(0.1)

*SCALE: 1 = LOW, 10 = HIGH
SAMPLE = 13

EXHIBIT VI-5

TPM HARDWARE MAINTENANCE PERFORMANCE VERSUS USER REQUIREMENT DEC USERS/CDC SERVICE

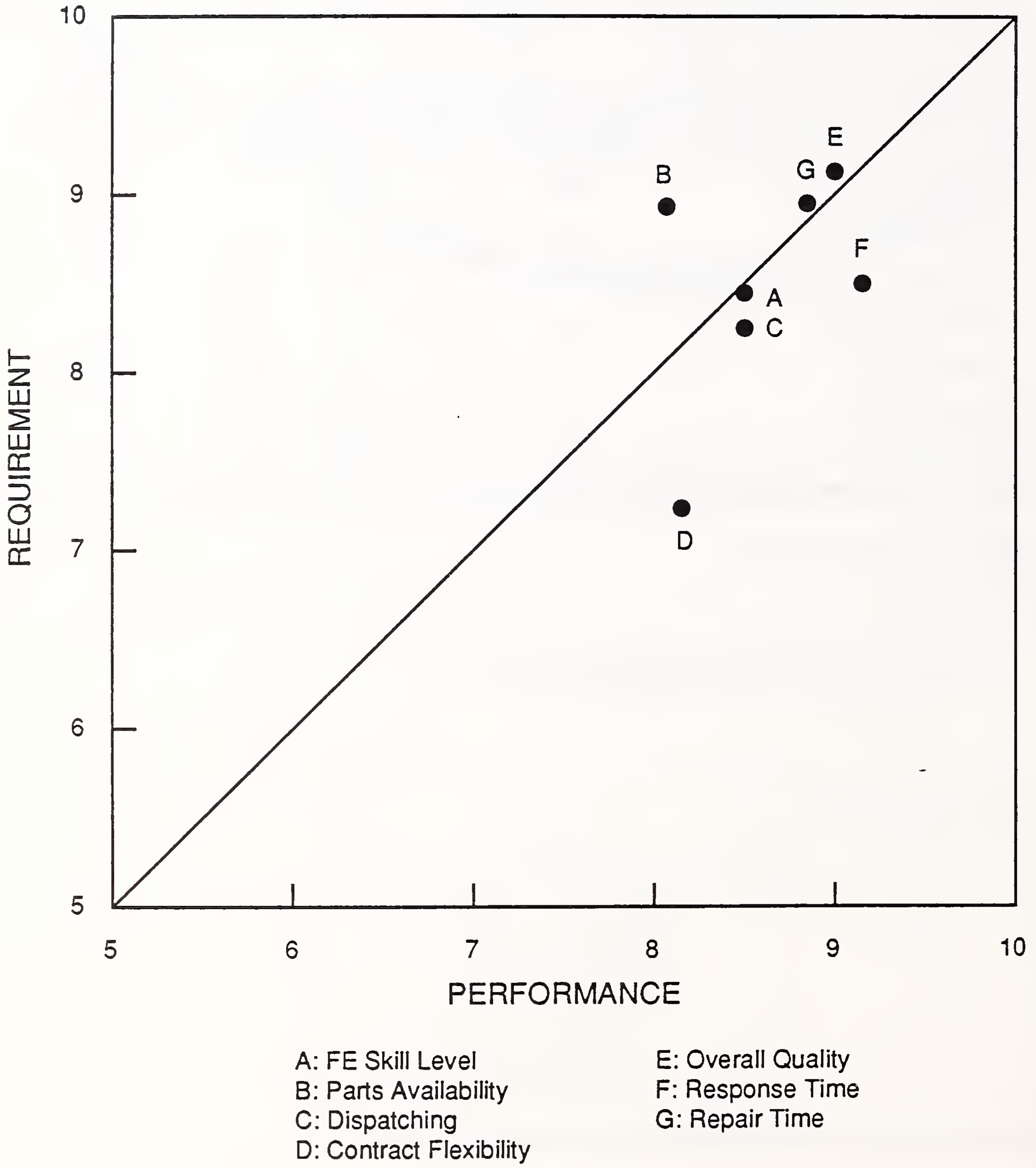
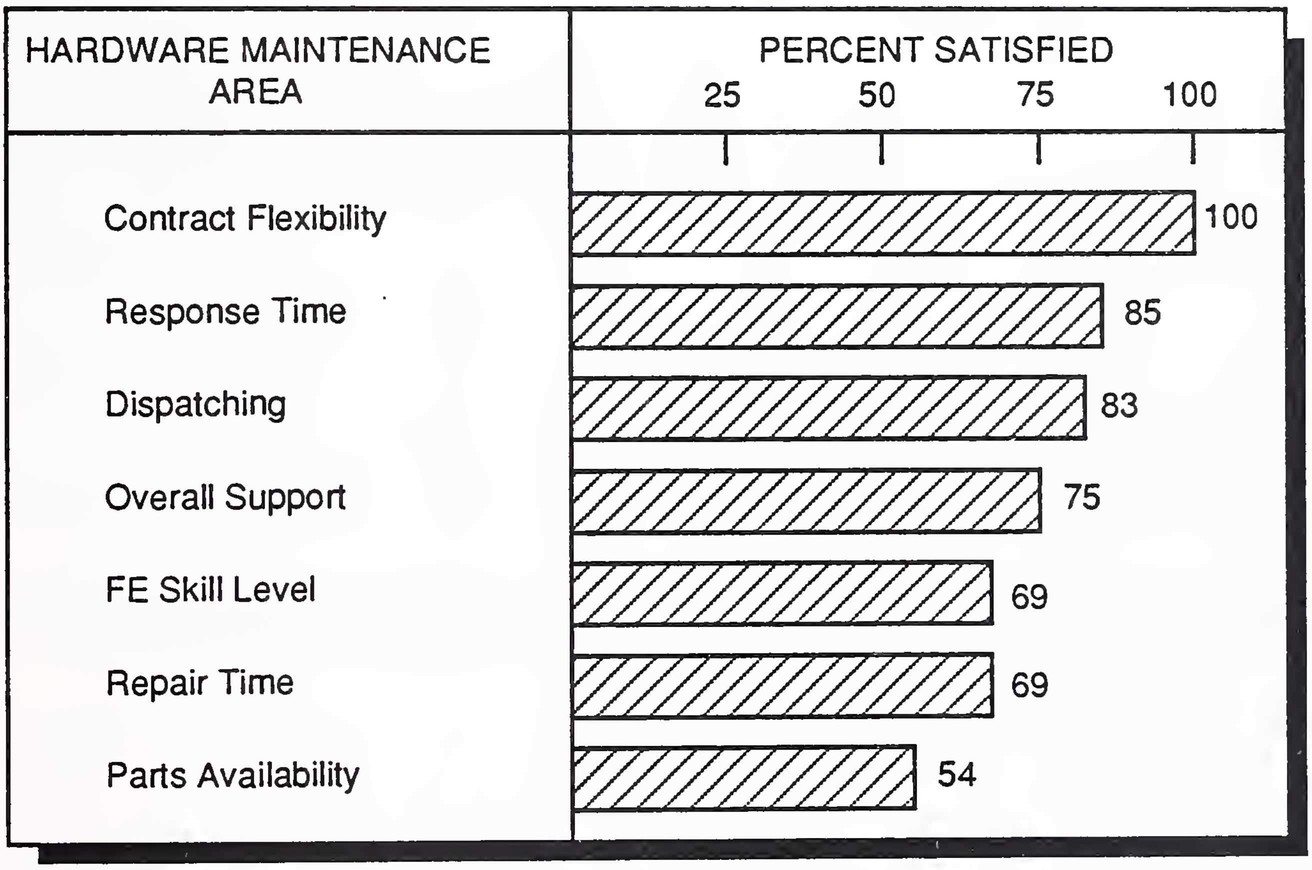


EXHIBIT VI-6

TPM HARDWARE MAINTENANCE SATISFACTION LEVELS DEC USER/CDC SERVICE



SAMPLE = 13

EXHIBIT VI-7

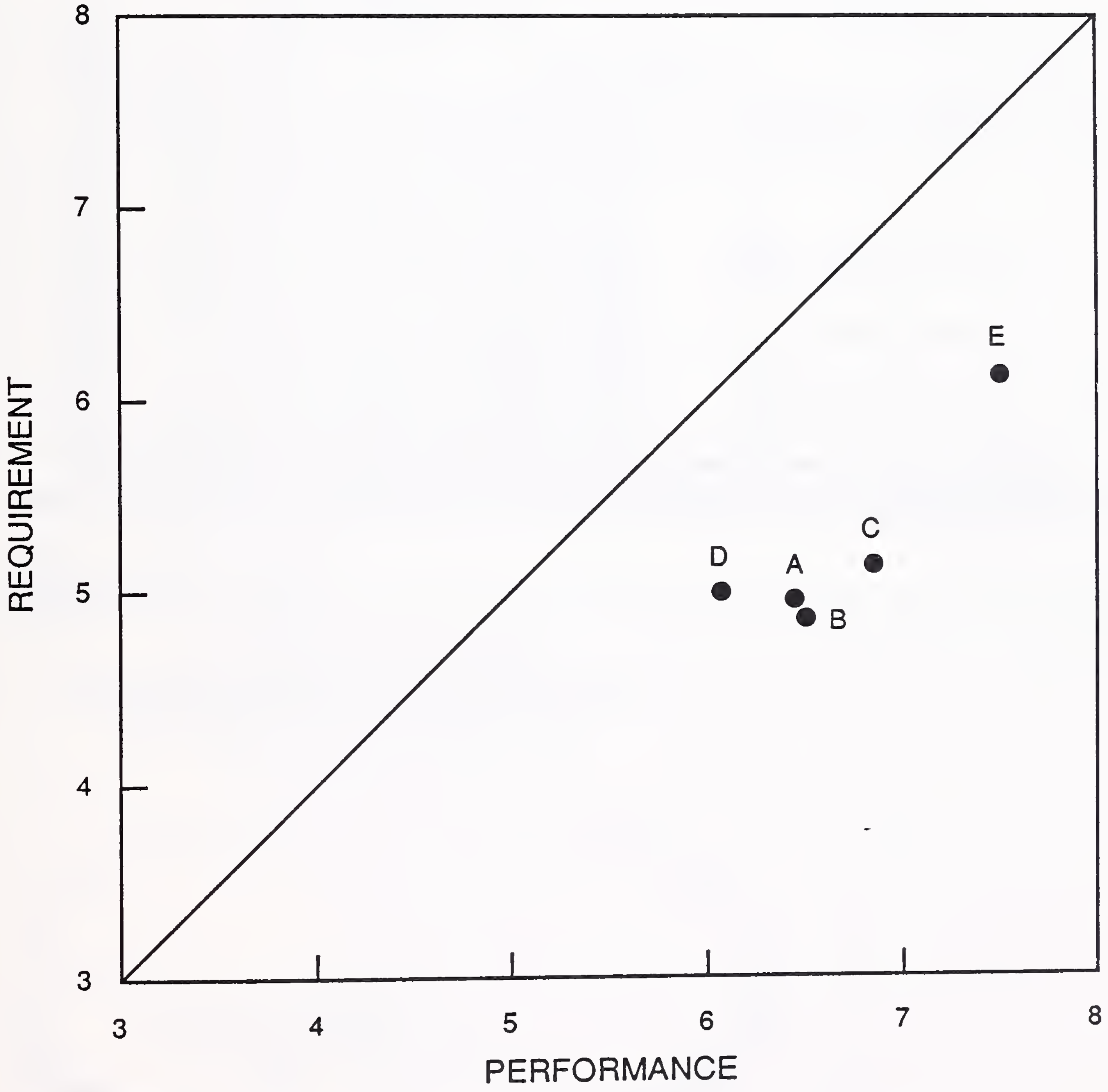
TPM VENDOR REQUIREMENT/PERFORMANCE LEVELS DEC USERS/CDC SERVICE

SERVICE	USER RATING*		PERFORMANCE EXCEEDS (FALLS BELOW) REQUIREMENT
	REQUIREMENT	PERFORMANCE	
Professional Services	4.9	6.4	1.5
Training	4.8	6.5	1.7
Add-On/Supplies Sales	5.2	6.8	1.6
Relocation/Deinstalls	5.0	6.1	1.1
Conversion/Upgrades	6.2	7.5	1.3

*SCALE: 1 = LOW, 10 = HIGH
SAMPLE = 13

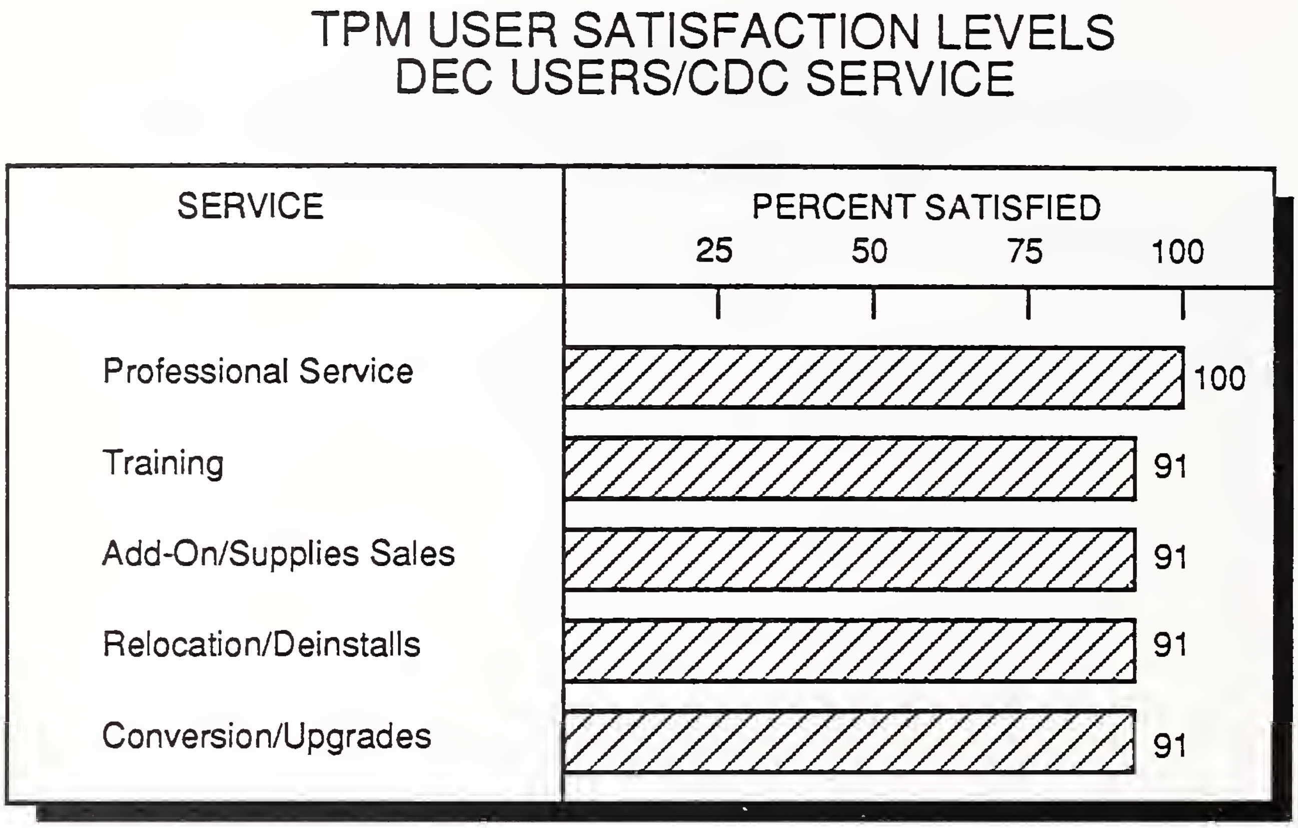
EXHIBIT VI-8

TPM VENDOR
PERFORMANCE VERSUS USER REQUIREMENT
DEC USERS/CDC SERVICE



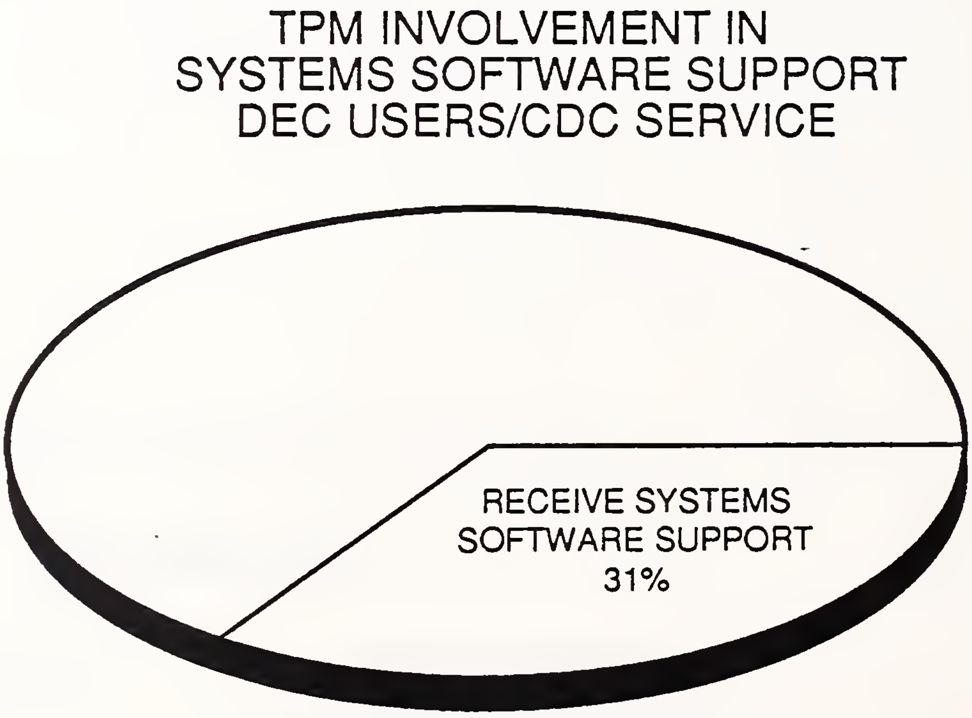
A: Professional Services
B: Training
C: Add-On/Supplies Sales
D: Relocation/Deinstalls
E: Conversion/Upgrades

EXHIBIT VI-9



SAMPLE = 13

EXHIBIT VI-10



SAMPLE = 13

EXHIBIT VI-11

TPM SYSTEMS SOFTWARE SUPPORT REQUIREMENT/PERFORMANCE LEVELS DEC USERS/CDC SERVICE

SYSTEMS SOFTWARE SUPPORT	USER RATING*		PERFORMANCE EXCEEDS (FAILS TO MEET) REQUIREMENT
	REQUIREMENT	PERFORMANCE	
On-Site Fixes	1.3	1.3	-
Phone Support	6.3	5.3	(1.0)
Remote Support	2.8	**	**
Training	3.5	5.7	2.2
Consulting	1.5	3.0	1.5
Mailed Revisions	8.8	5.5	(3.3)

*SCALE: 1 = LOW, 10 = HIGH
**INSUFFICIENT RESPONSE
SAMPLE = 13

EXHIBIT VI-12

TPM SYSTEMS SOFTWARE SUPPORT PERFORMANCE VERSUS USER REQUIREMENT DEC USERS/CDC SERVICE

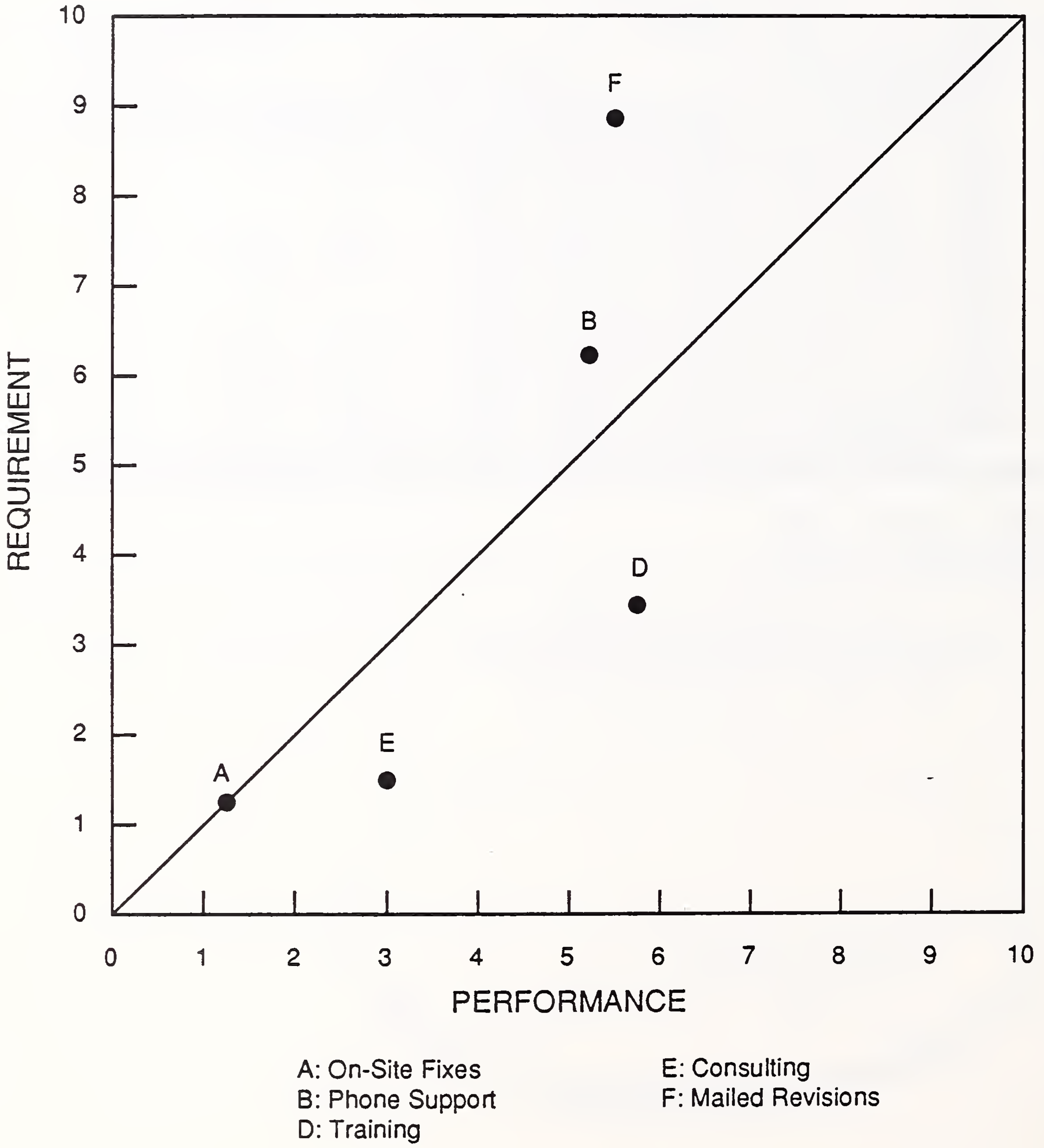


EXHIBIT VI-13

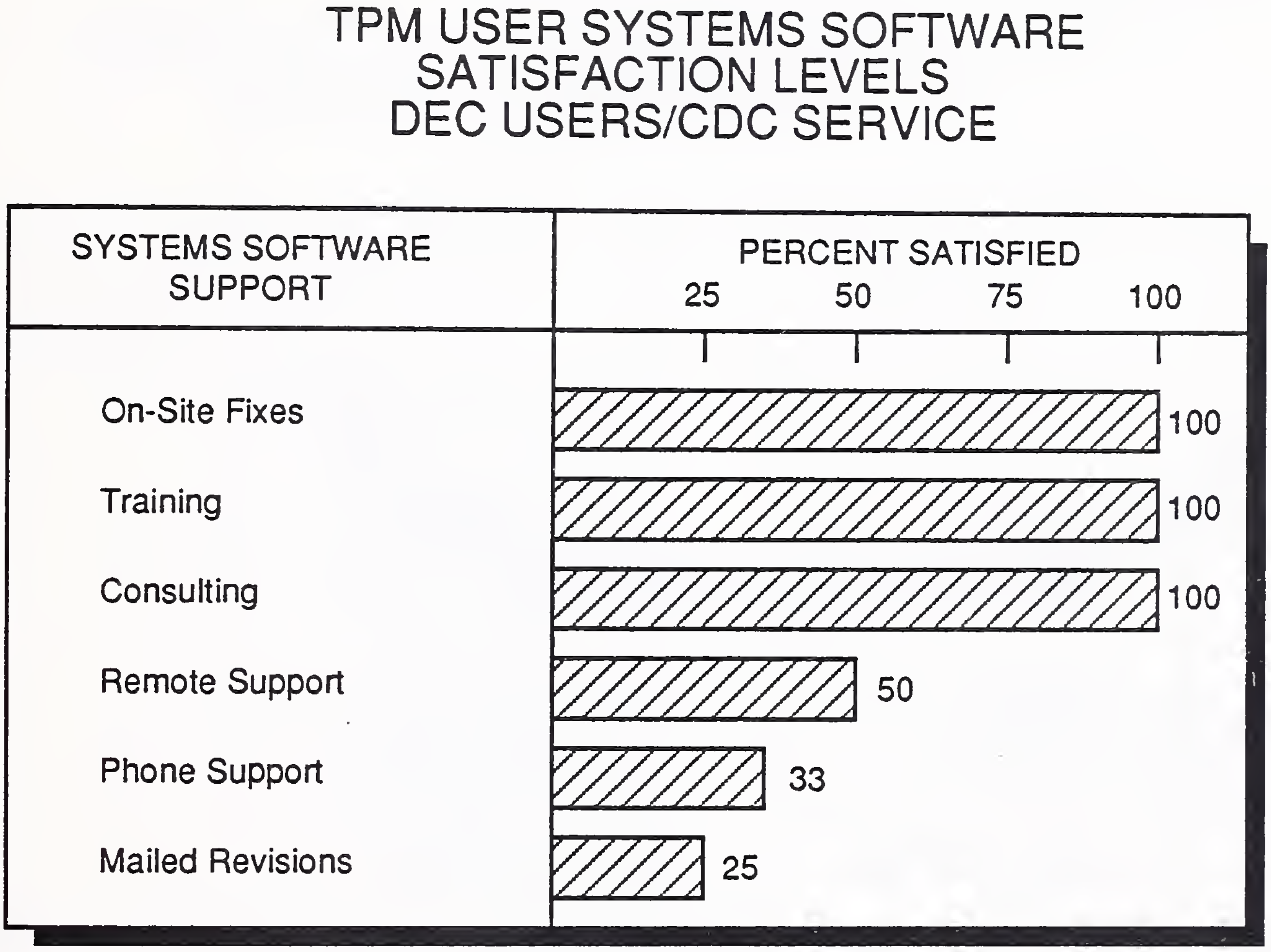
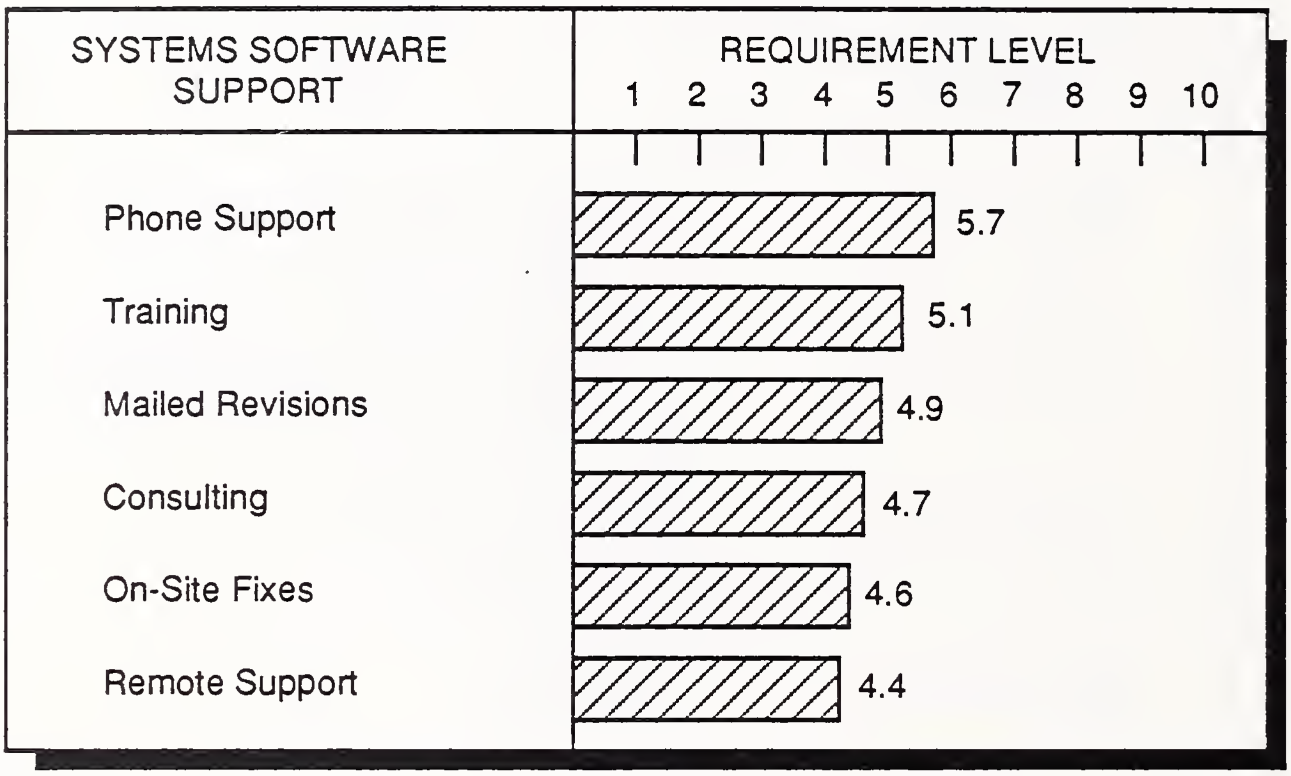


EXHIBIT VI-14

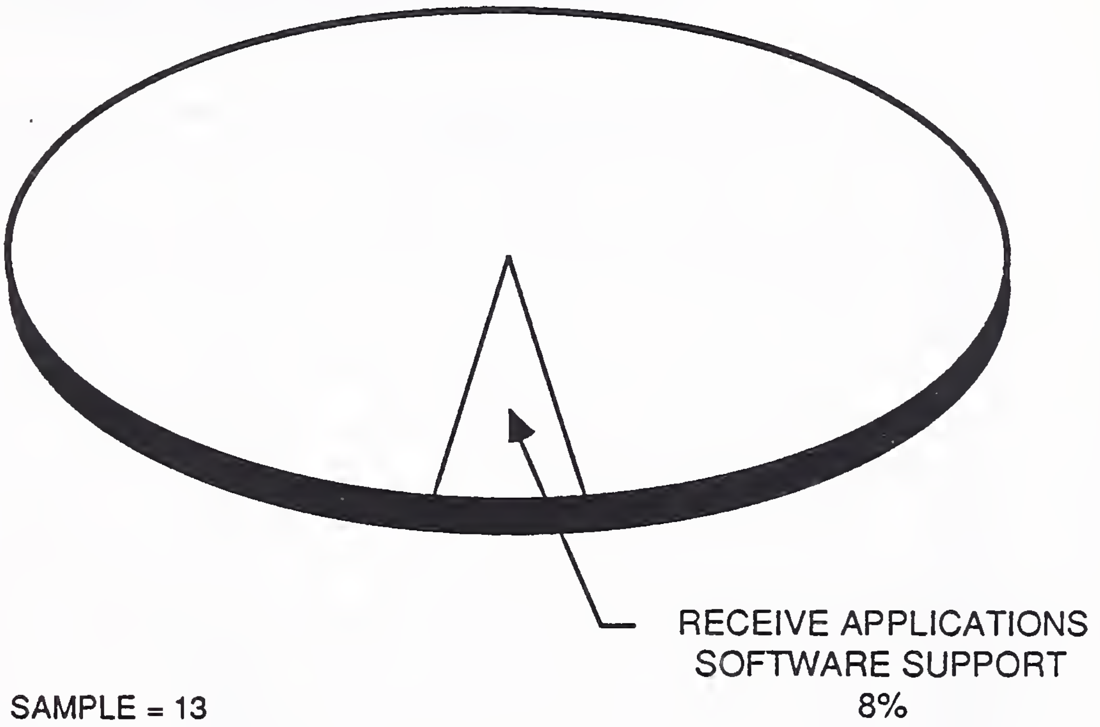
TPM SYSTEMS SOFTWARE SUPPORT
OPPORTUNITY LEVELS
DEC USERS/CDC SERVICE



REQUIREMENT LEVEL SCALE: 1 = LOW, 10 = HIGH

EXHIBIT VI-15

TPM INVOLVEMENT IN APPLICATIONS SOFTWARE SUPPORT DEC USERS/CDC SERVICE



SAMPLE = 13

EXHIBIT VI-16

TPM APPLICATIONS SOFTWARE SUPPORT REQUIREMENT/PERFORMANCE LEVELS DEC USERS/CDC SERVICE

APPLICATIONS SOFTWARE SUPPORT	USER RATING*		PERFORMANCE EXCEEDS (FAILS TO MEET) REQUIREMENT
	REQUIREMENT	PERFORMANCE	
On-Site Fixes	3.0	5.0	2.0
Phone Support	9.0	7.0	(2.0)
Remote Support	1.0	1.0	-
Training	1.0	1.0	-
Consulting	5.0	5.0	-
Mailed Revisions	6.0	8.0	2.0

*SCALE: 1 = LOW, 10 = HIGH

EXHIBIT VI-17

TPM APPLICATIONS SOFTWARE SUPPORT PERFORMANCE VERSUS USER REQUIREMENT DEC USERS/CDC SERVICE

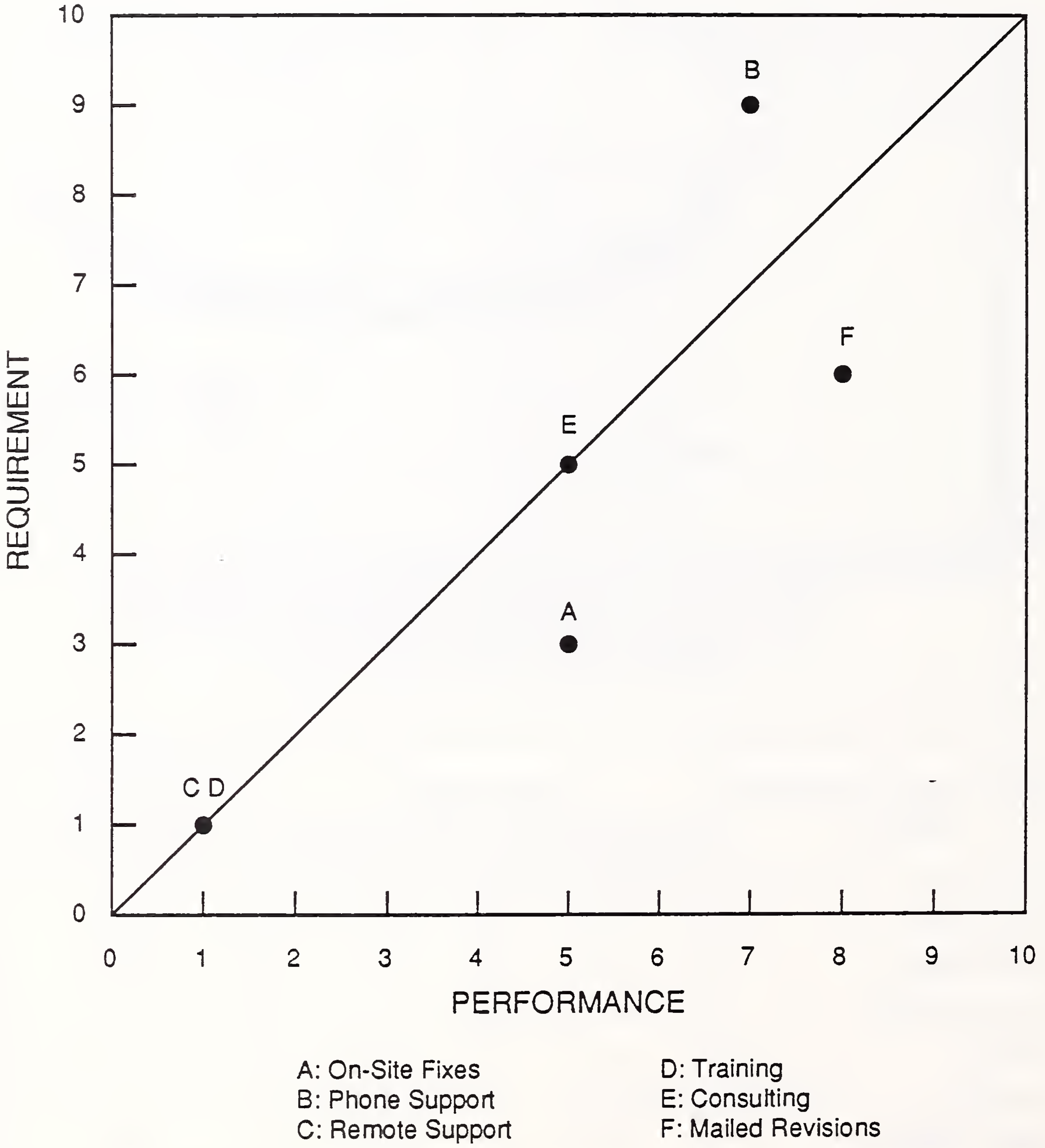


EXHIBIT VI-18

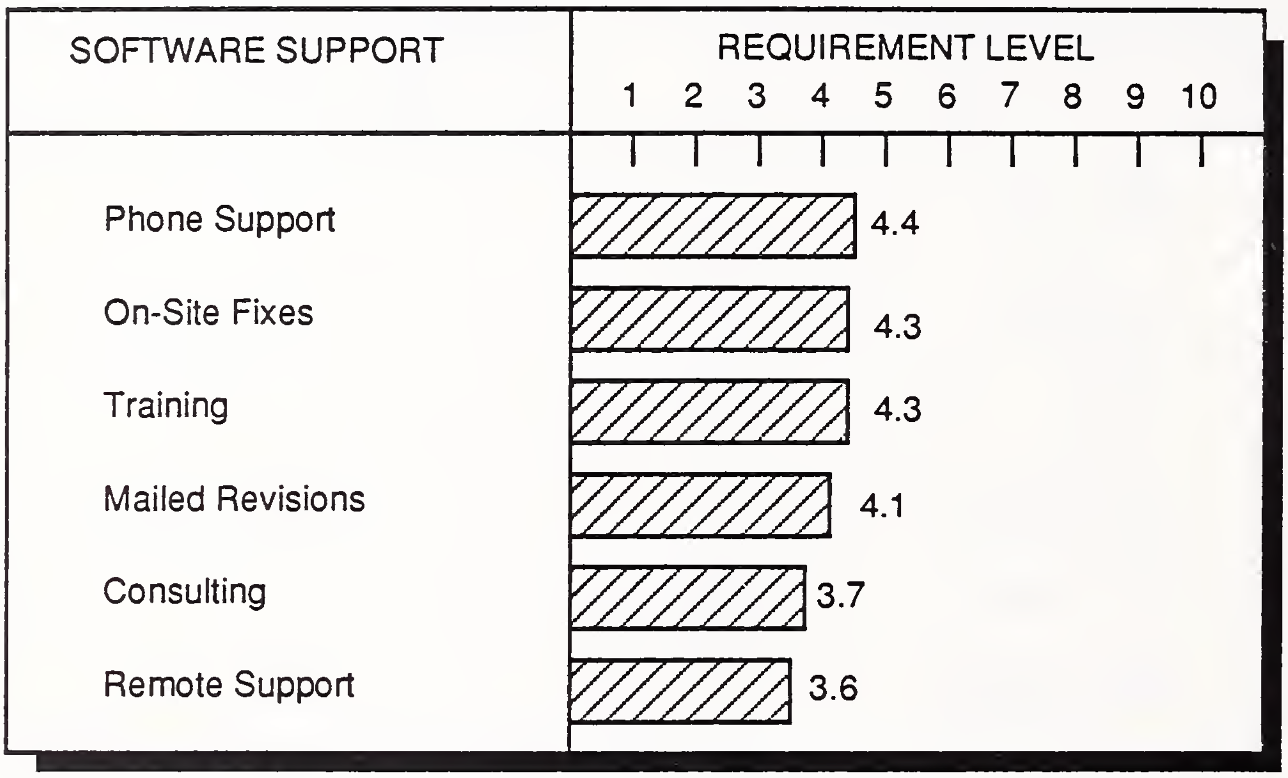
TPM APPLICATIONS SOFTWARE SUPPORT SATISFACTION LEVELS DEC USERS/CDC SERVICE

SOFTWARE SUPPORT	PERCENT SATISFIED			
	25	50	75	100
On-Site Fixes	*			
Consulting	*			
Training	*			
Remote Support	*			
Phone Support	*			
Mailed Revisions	*			

* NOT APPLICABLE - SINGLE RESPONSE

EXHIBIT VI-19

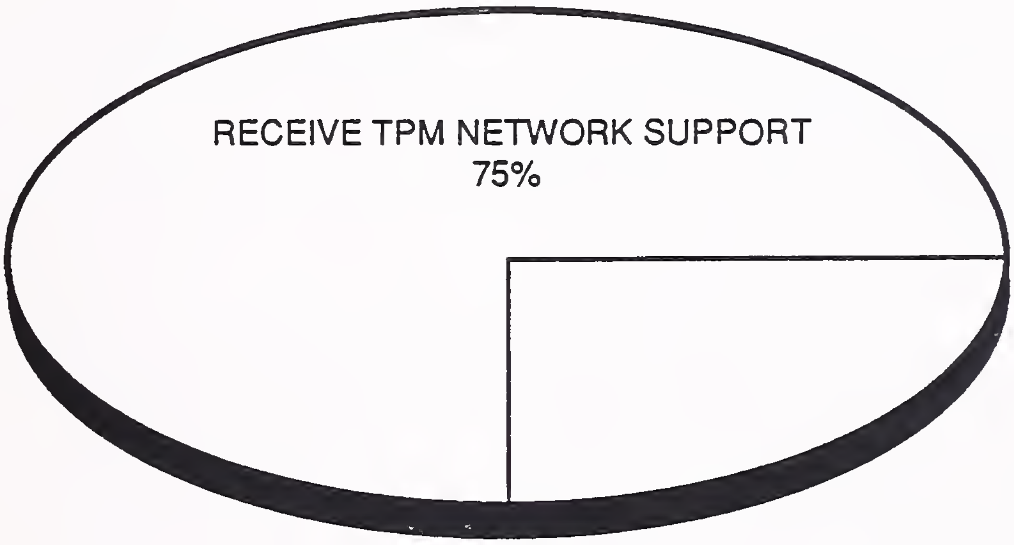
TPM APPLICATIONS SOFTWARE SUPPORT OPPORTUNITY LEVELS DEC USERS/CDC SERVICE



REQUIREMENT LEVEL SCALE: 1 = LOW, 10 = HIGH

EXHIBIT VI-20

THIRD-PARTY NETWORK SUPPORT OPPORTUNITY DEC USERS/CDC SERVICE



* 0% WILLING TO CONSIDER TPM NETWORK SUPPORT

SAMPLE = 4 NETWORK USERS

VII

Analysis of DEC User Service–Other TPM Service

VII

Analysis of DEC User Service–Other TPM Service

A Introduction

This chapter separates DEC users who receive their TPM from sources other than CDC in order to provide a comparison between CDC TPM service performance and the competitive environment. After removing the thirteen CDC users, the remaining 28 TPM users were analyzed in this chapter.

B Analysis

The users of TPM service other than CDC place even less importance on price than other (service quality) issues, with price ranking fifth out of eight criteria tested (shown in Exhibit VII-1). Forty-three percent of the sample were satisfied enough with their experience to increase or at least keep constant their usage of TPM (Exhibit VII-2), a fact supported by generally positive reaction to the quality of support reported by these users.

Indeed, response and repair times were better than users required (Exhibit VII-3), and the majority of the users' needs for most hardware maintenance were met by their service vendors (the biggest concerns were regarding parts availability, repair time, and field engineer skill level, all related to some degree). In addition, the TPM respondents reported satisfaction with the support that they received in the professional services areas, even though user requirements for such service were relatively low.

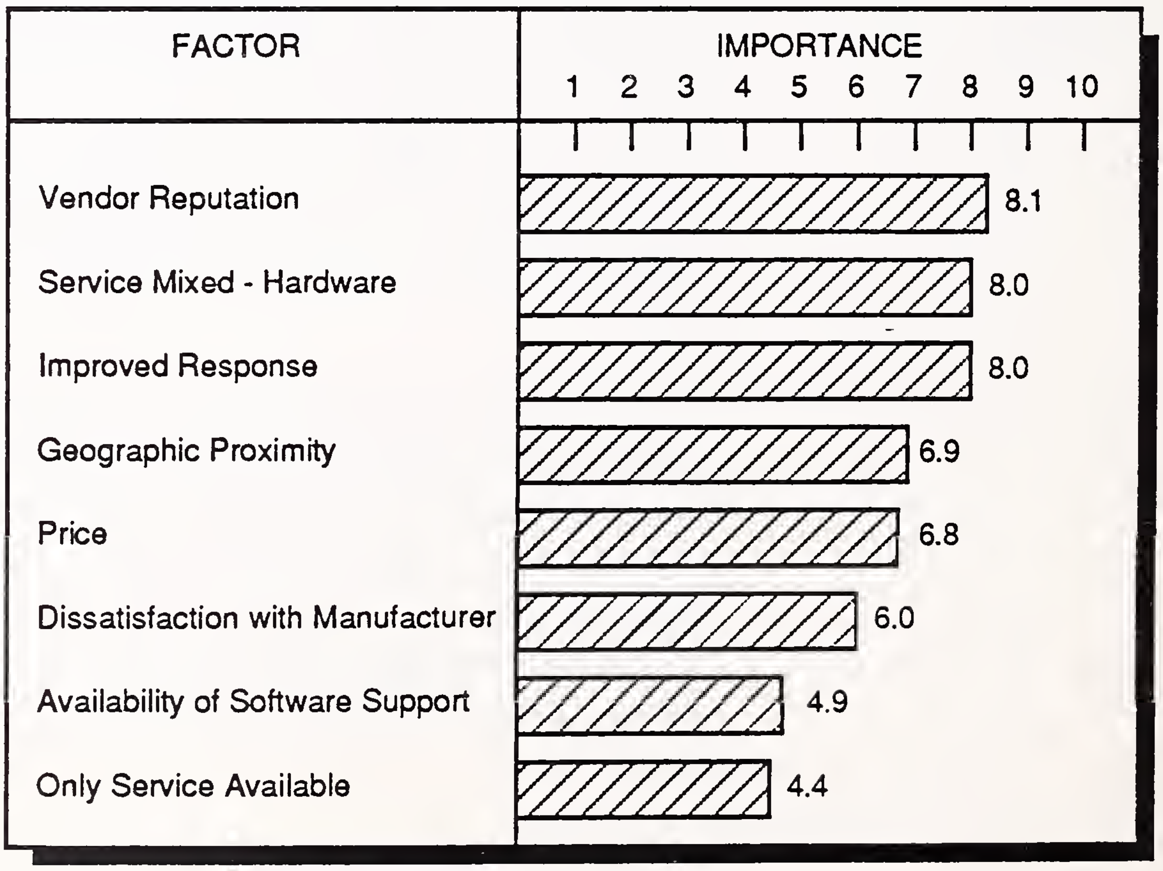
Also, these users were satisfied by the quality of limited software support that they received from their TPM, even though their requirement levels for software support services were relatively low for all services except phone support and mailed revisions (shown in Exhibits VII-11 through IV-13 and Exhibits VII-15 through VII-17).

The importance placed by TPM users on these last two support services is also shown in Exhibits VII-14 and VII-18, where it can be seen that users who don't already receive software support from their TPM would be most attracted to telephone support and mailed revisions.

Exhibit VII-20 shows that other TPMs have not be successful in garnering network support customers, as only two of the thirteen network users received their support from third parties (compared with three of the four network users who used CDC TPM services). Furthermore, only one network user of the remaining eleven would consider using a TPM for their network support. TPMs have identified the telecom support area as a major opportunity area; however, TPMs will have to demonstrate their capabilities to perform such service in order to be successful in penetrating this market.

EXHIBIT VII-1

THIRD-PARTY MAINTENANCE SELECTION CRITERIA
DEC USERS/OTHER TPM SERVICE



SAMPLE = 28

EXHIBIT VII-2

FUTURE TPM USAGE EXPECTATIONS DEC USERS/OTHER TPM SERVICE

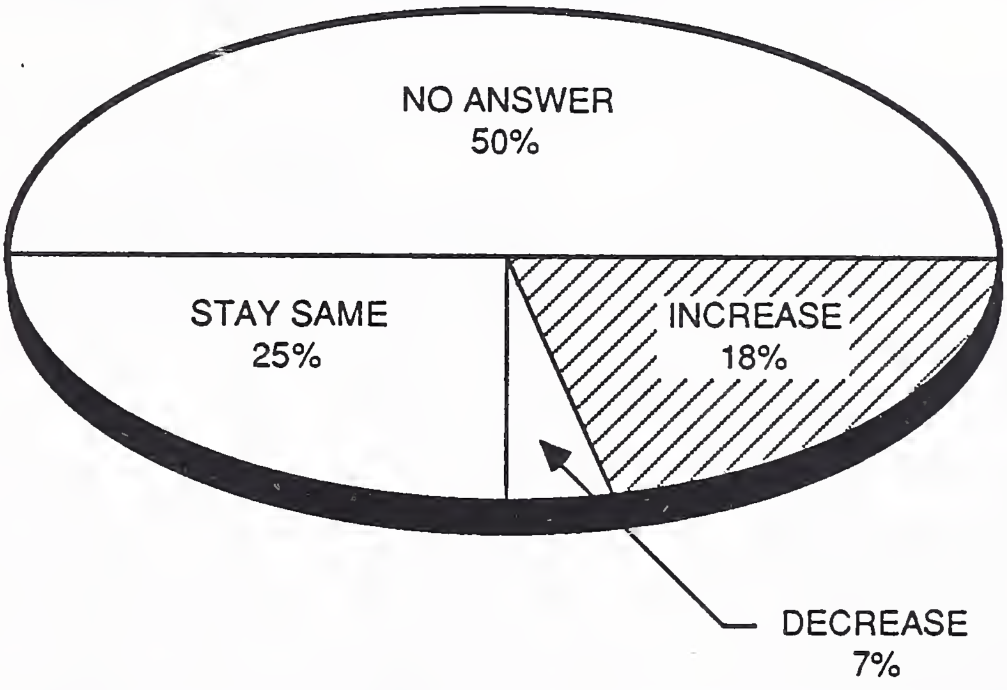


EXHIBIT VII-3

TPM VENDOR RESPONSIVENESS DEC USERS/OTHER TPM SERVICE

CRITERIA	PERFORMANCE (HOURS)
Response Time Required	4.0
Response Time Received	3.5
Repair Time Required	7.0
Repair Time Received	6.3

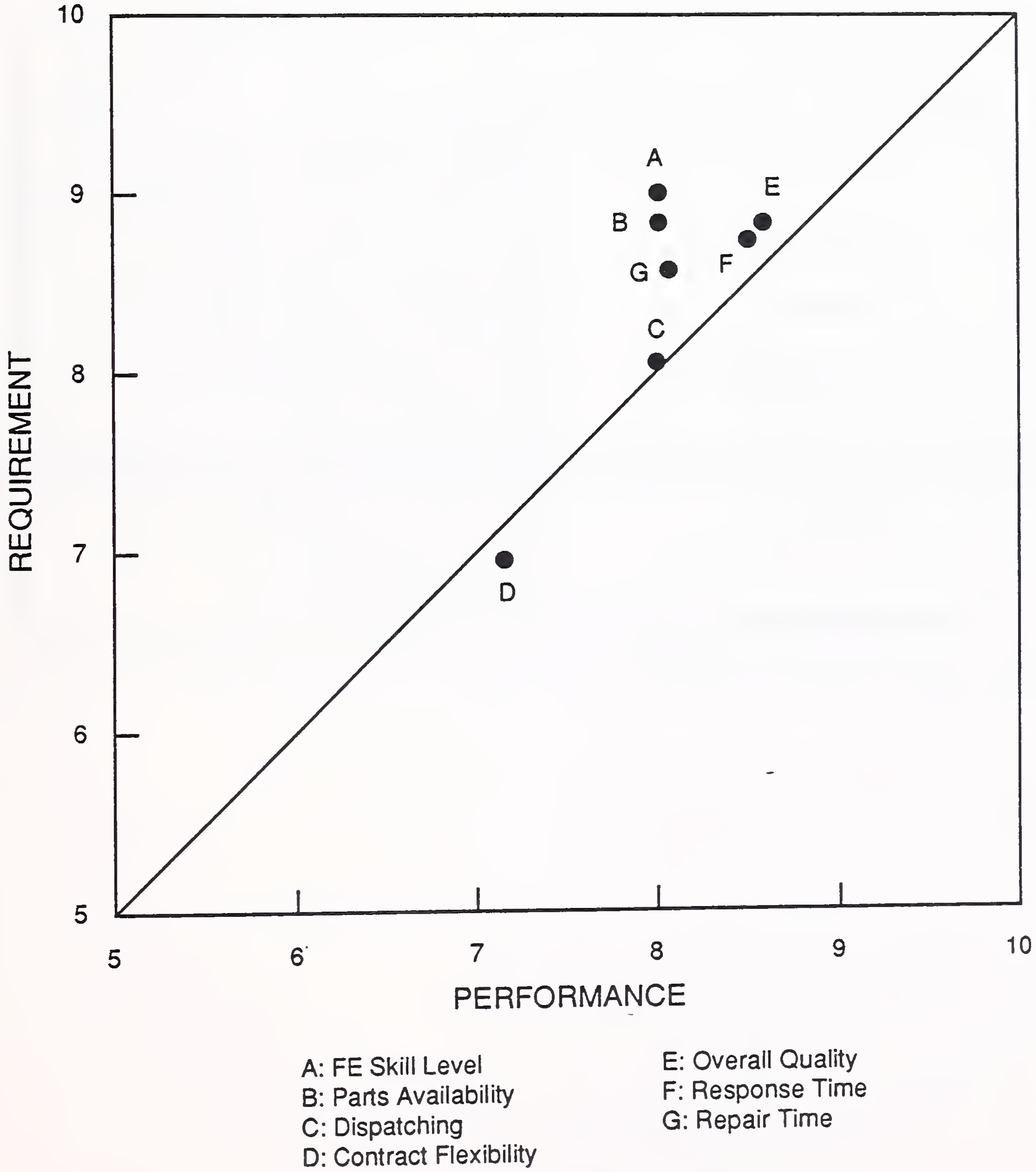
EXHIBIT VII-4

TPM HARDWARE MAINTENANCE REQUIREMENT/PERFORMANCE LEVELS DEC USERS/OTHER TPM SERVICE

HARDWARE MAINTENANCE AREA	USER RATING*		PERFORMANCE EXCEEDS (FALLS BELOW) REQUIREMENT
	REQUIREMENT	PERFORMANCE	
FE Skill Level	9.0	8.0	(1.0)
Parts Availability	8.8	8.0	(0.8)
Dispatching	8.0	8.1	0.1
Contract Flexibility	6.9	7.2	0.3
Overall Quality	8.8	8.6	(0.2)
Response Time	8.7	8.5	(0.2)
Repair Time	8.6	8.1	(0.5)

*SCALE: 1 = LOW, 10 = HIGH

EXHIBIT VII-5



TPM HARDWARE MAINTENANCE
PERFORMANCE VERSUS USER REQUIREMENT
DEC USERS/OTHER TPM SERVICE

EXHIBIT VII-6

TPM HARDWARE MAINTENANCE SATISFACTION LEVELS DEC USERS/OTHER TPM SERVICE

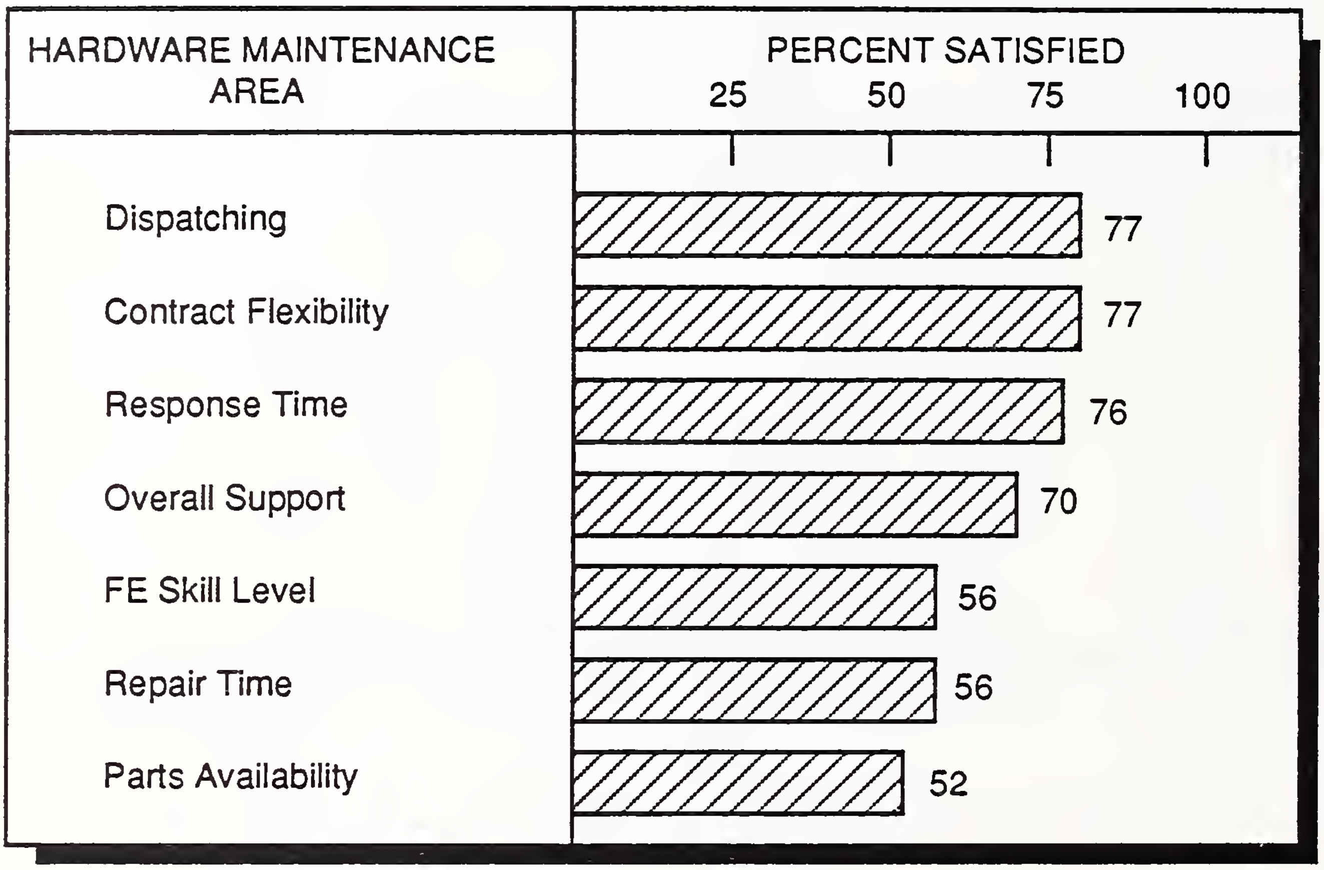


EXHIBIT VII-7

TPM VENDOR
REQUIREMENT/PERFORMANCE LEVELS
DEC USERS/OTHER TPM SERVICE

SERVICE	USER RATING*		PERFORMANCE EXCEEDS (FALLS BELOW) REQUIREMENT
	REQUIREMENT	PERFORMANCE	
Professional Services	4.0	6.7	2.7
Training	5.1	6.5	1.4
Add-On/Supplies Sales	5.1	6.4	1.3
Relocation/Deinstalls	5.2	6.5	1.3
Conversion/Upgrades	6.9	7.7	0.8

*SCALE: 1 = LOW, 10 = HIGH

EXHIBIT VII-8

TPM VENDOR
PERFORMANCE VERSUS USER REQUIREMENT
DEC USERS/OTHER TPM SERVICE

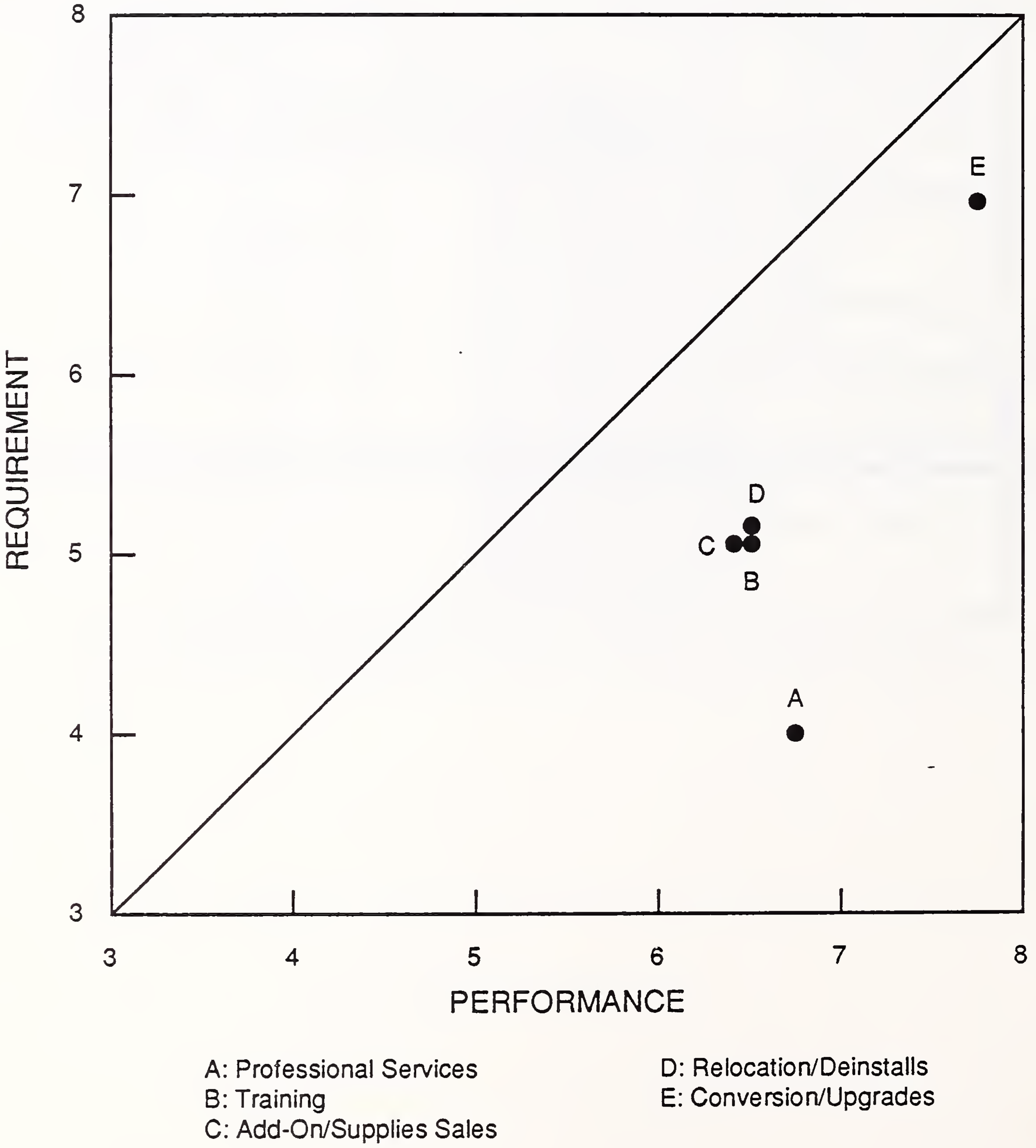


EXHIBIT VII-9

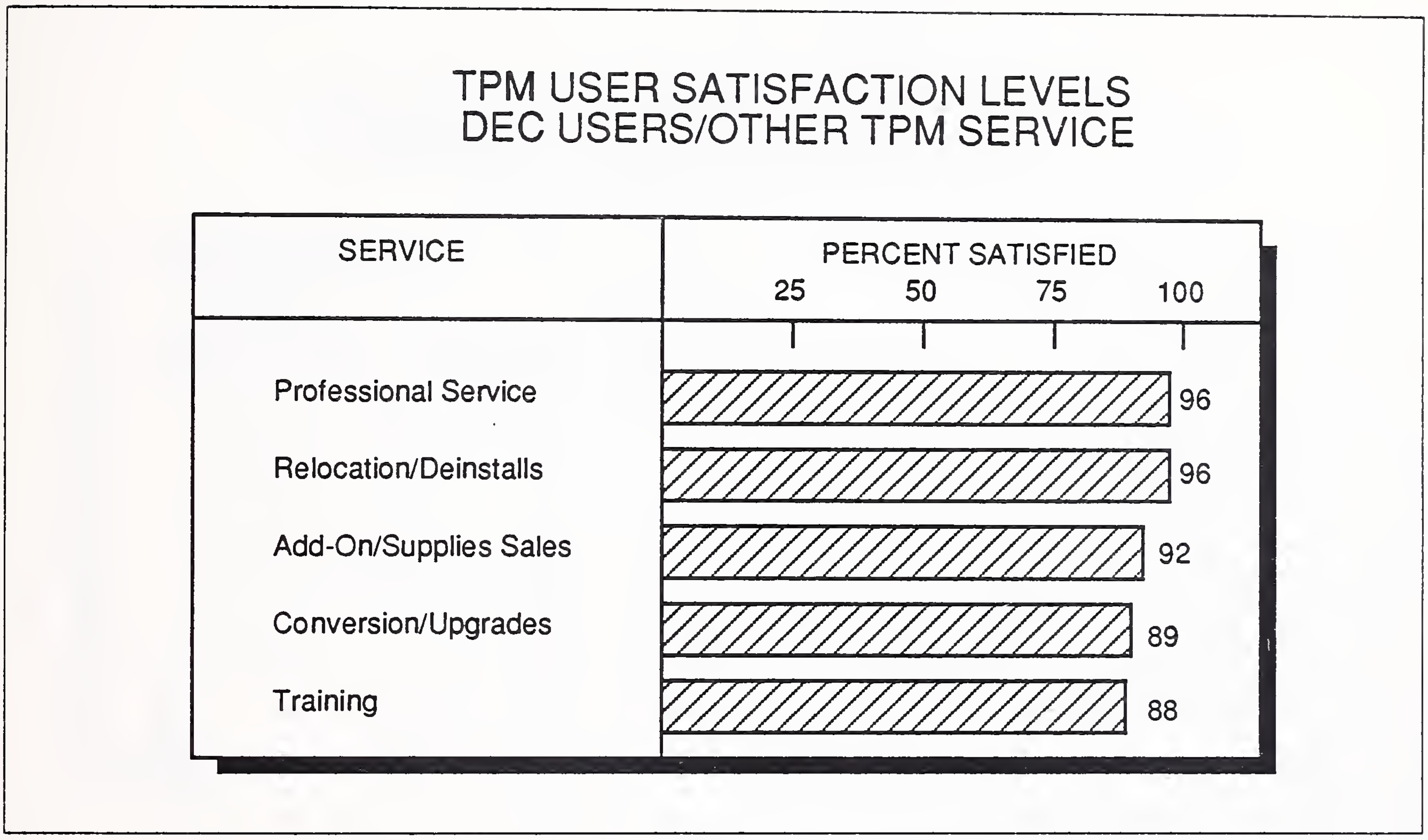


EXHIBIT VII-10

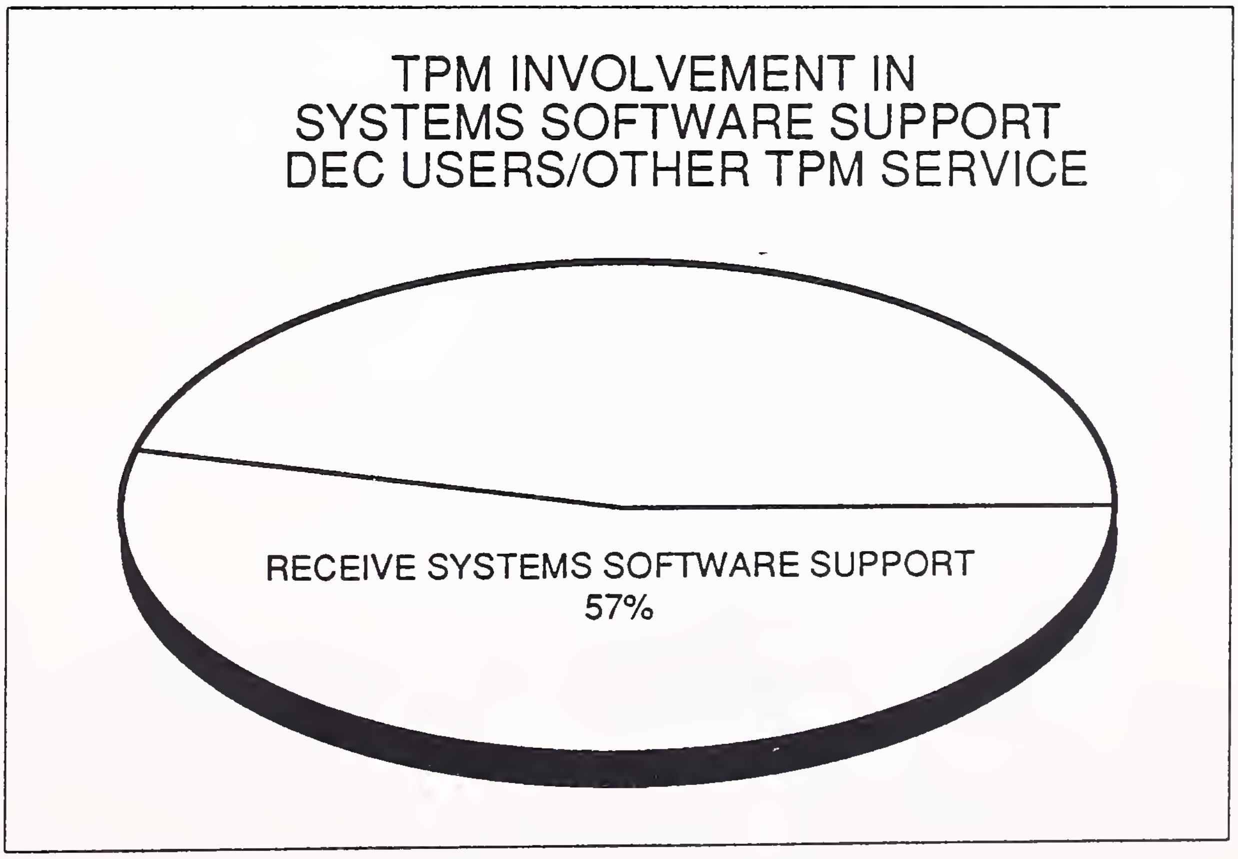


EXHIBIT VII-11

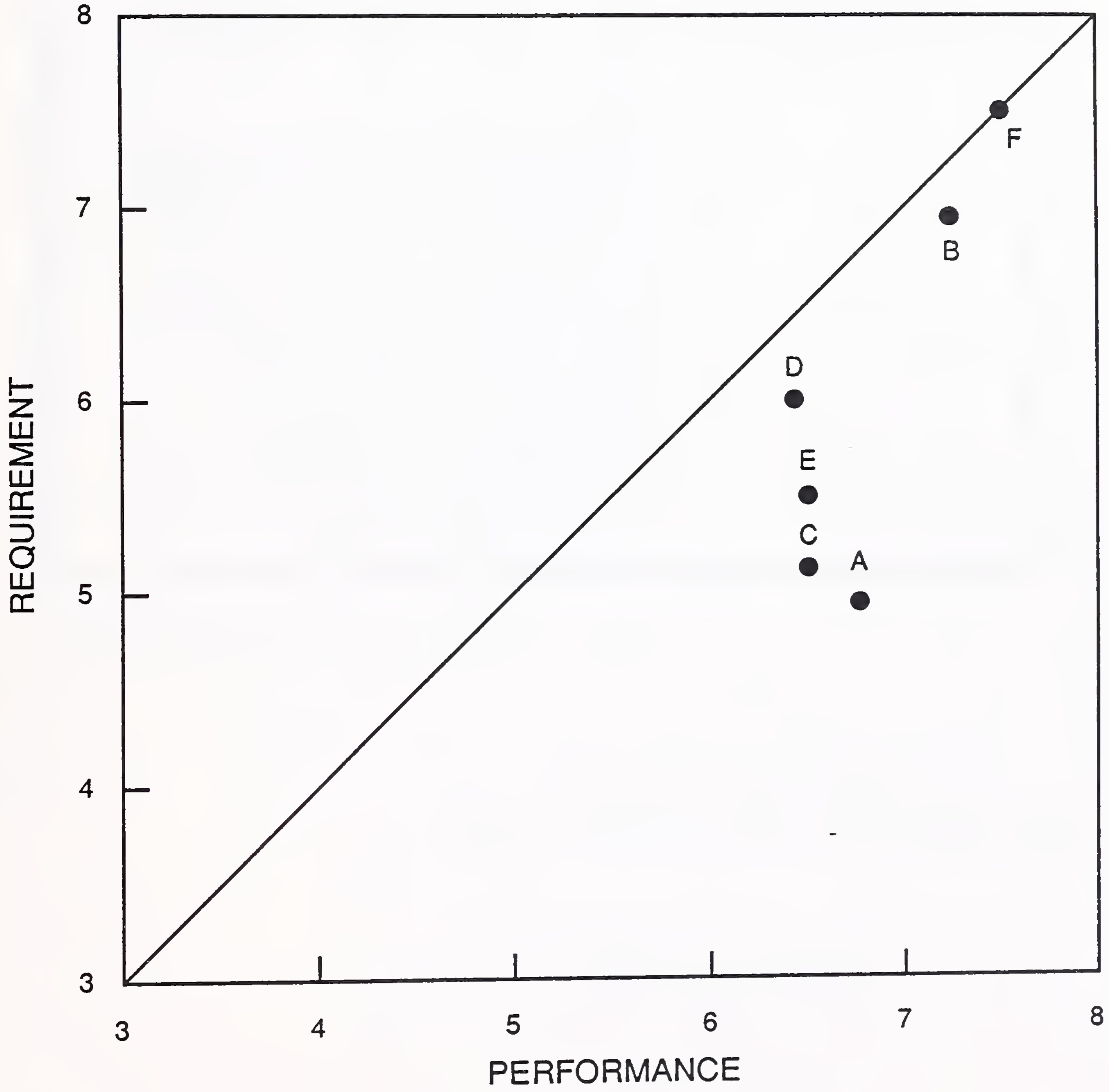
TPM SYSTEMS SOFTWARE SUPPORT REQUIREMENT/PERFORMANCE LEVELS DEC USERS/OTHER TPM SERVICE

SYSTEMS SOFTWARE SUPPORT	USER RATING*		PERFORMANCE EXCEEDS (FAILS TO MEET) REQUIREMENT
	REQUIREMENT	PERFORMANCE	
On-Site Fixes	4.9	6.7	1.8
Phone Support	6.9	7.3	0.4
Remote Support	5.2	6.5	1.3
Training	6.0	6.4	0.4
Consulting	5.5	6.5	1.0
Mailed Revisions	7.5	7.5	-

*SCALE: 1 = LOW, 10 = HIGH

EXHIBIT VII-12

TPM SYSTEMS SOFTWARE SUPPORT PERFORMANCE VERSUS USER REQUIREMENT DEC USERS/OTHER TPM SERVICE



A: On-Site Fixes
B: Phone Support
C: Remote Support
D: Training
E: Consulting
F: Mailed Revisions

EXHIBIT VII-13

TPM USER SYSTEMS SOFTWARE SATISFACTION LEVELS DEC USERS/OTHER TPM SERVICE

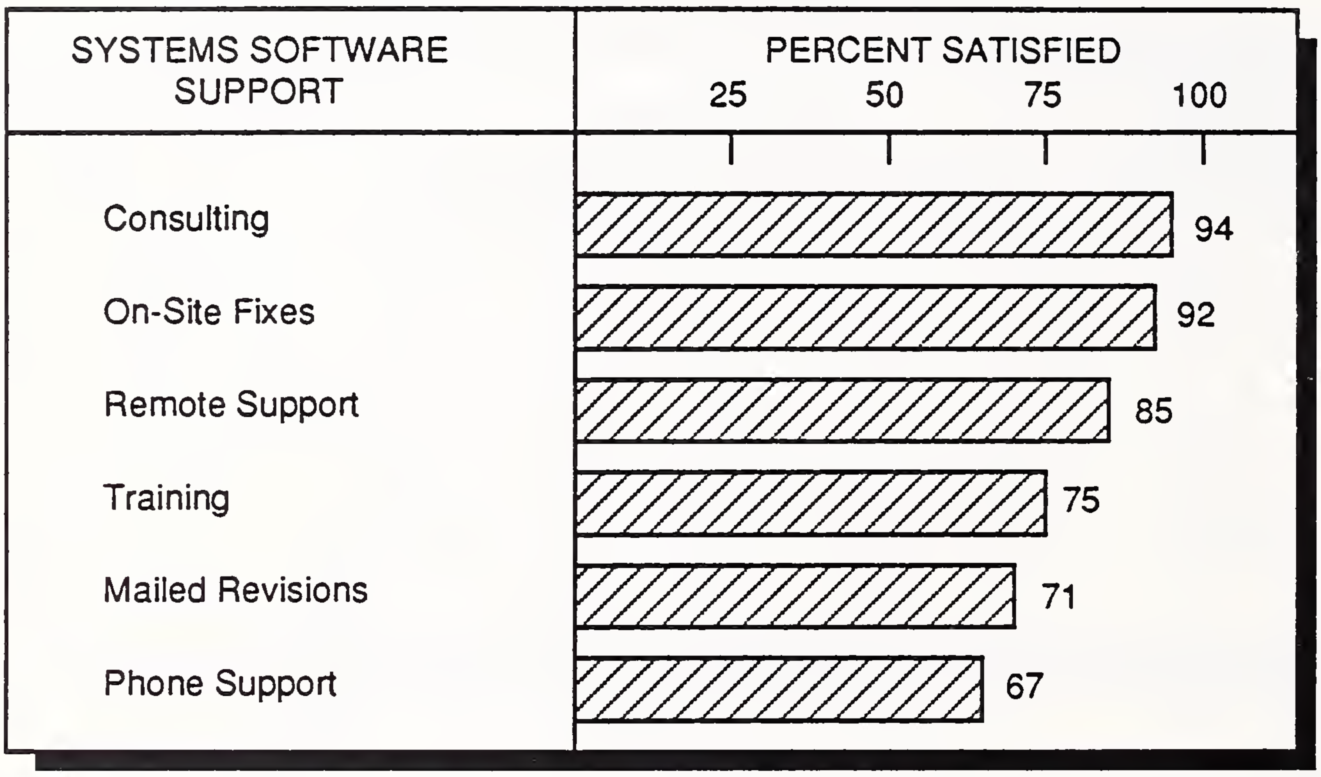
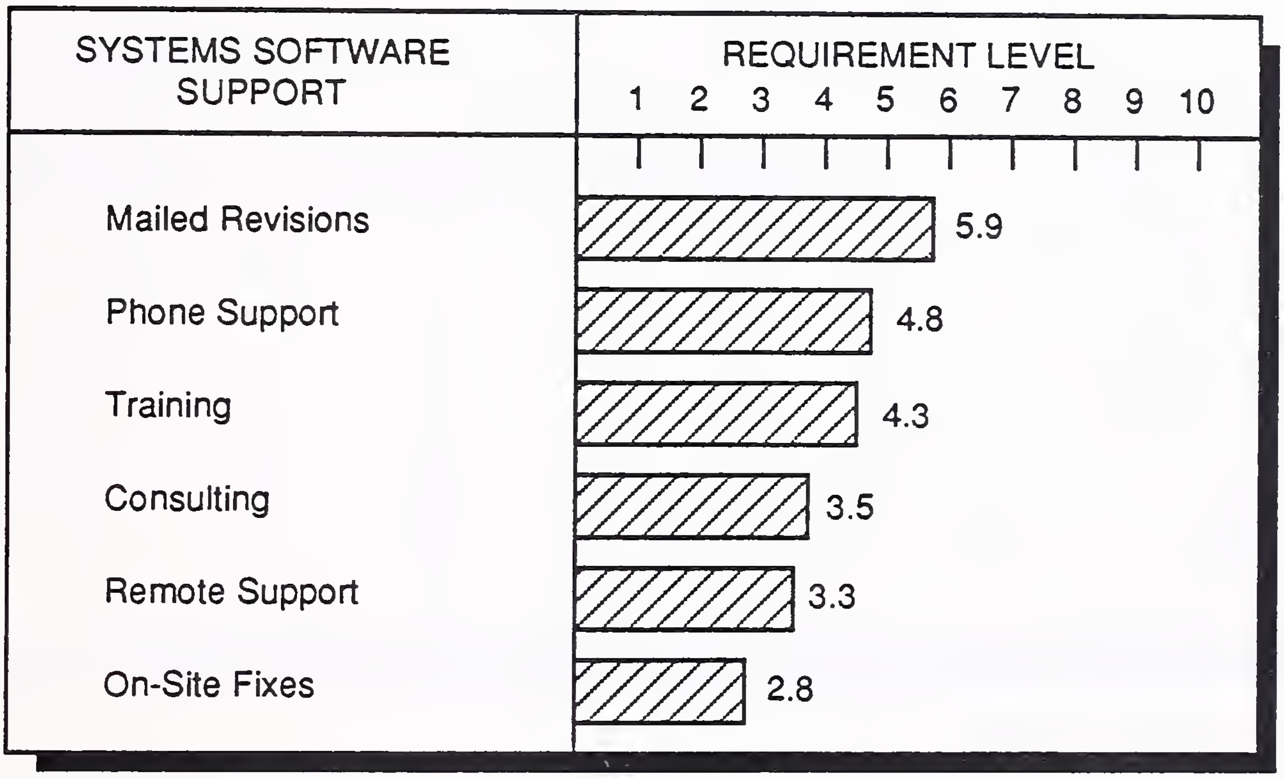


EXHIBIT VII-14

TPM SYSTEMS SOFTWARE SUPPORT OPPORTUNITY LEVELS DEC USERS/OTHER TPM SERVICE



REQUIREMENT LEVEL SCALE: 1 = LOW, 10 = HIGH

EXHIBIT VII-15

TPM INVOLVEMENT IN APPLICATIONS SOFTWARE SUPPORT DEC USERS/OTHER TPM SERVICE

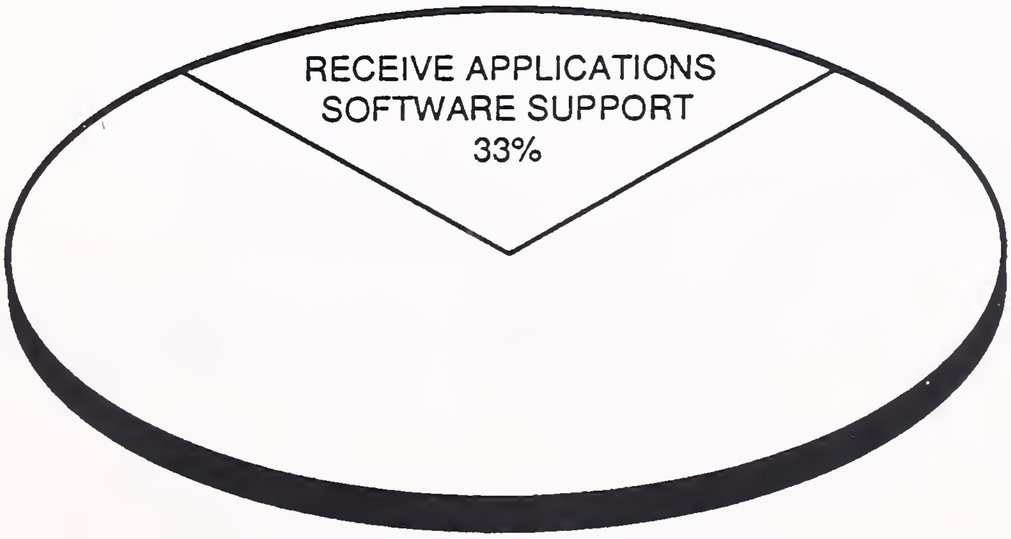


EXHIBIT VII-16

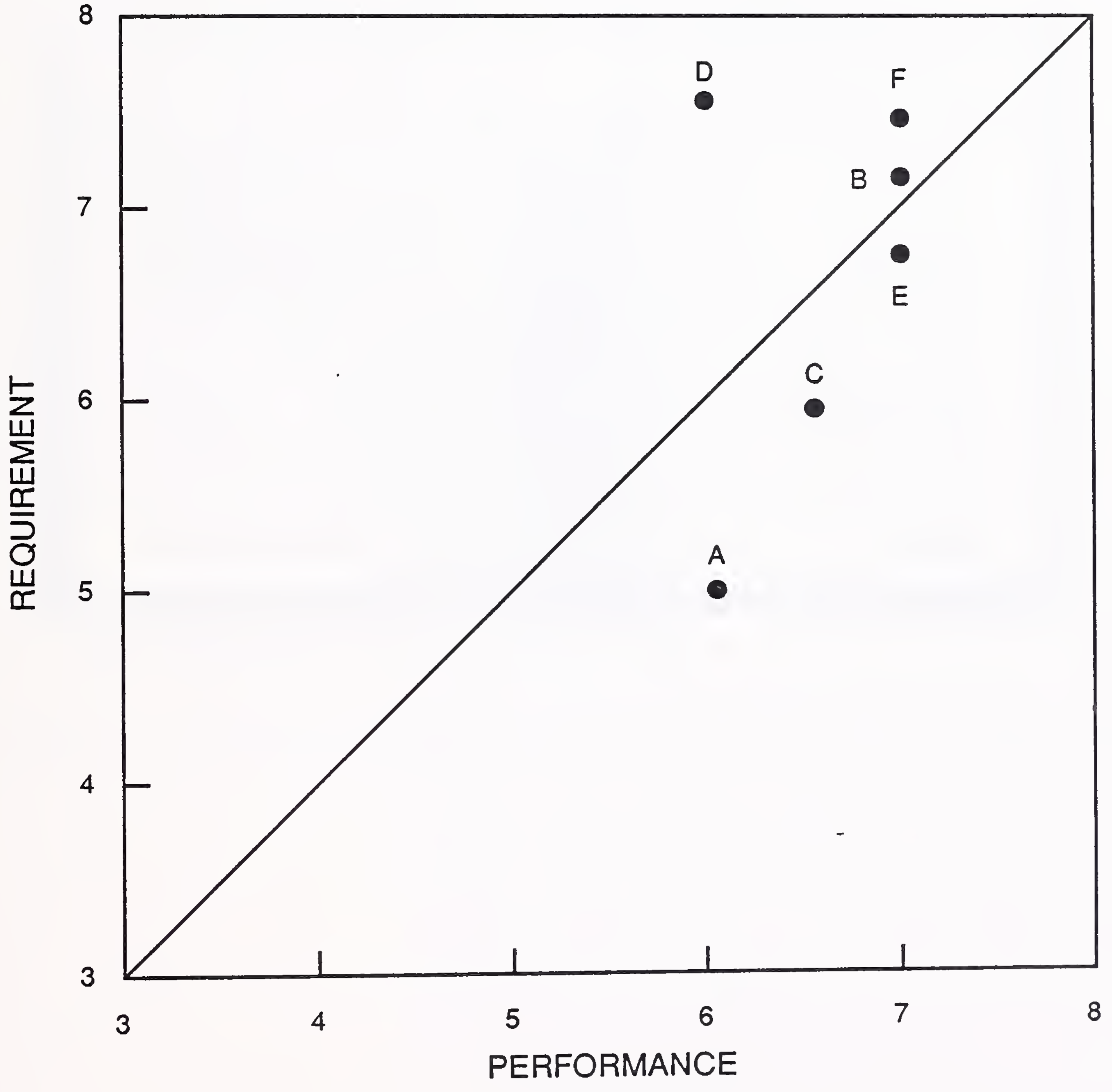
TPM APPLICATIONS SOFTWARE SUPPORT REQUIREMENT/PERFORMANCE LEVELS DEC USERS/OTHER TPM SERVICE

APPLICATIONS SOFTWARE SUPPORT	USER RATING*		PERFORMANCE EXCEEDS (FAILS TO MEET) REQUIREMENT
	REQUIREMENT	PERFORMANCE	
On-Site Fixes	5.0	6.1	1.1
Phone Support	7.2	7.0	(0.2)
Remote Support	5.9	6.6	0.7
Training	7.6	6.6	(1.0)
Consulting	6.7	7.0	0.3
Mailed Revisions	7.4	7.0	(0.4)

*SCALE: 1 = LOW, 10 = HIGH

EXHIBIT VII-17

TPM APPLICATIONS SOFTWARE SUPPORT PERFORMANCE VERSUS USER REQUIREMENT DEC USERS/OTHER TPM SERVICE



A: On-Site Fixes
B: Phone Support
C: Remote Support
D: Training
E: Consulting
F: Mailed Revisions

EXHIBIT VII-18

TPM APPLICATIONS SOFTWARE SUPPORT SATISFACTION LEVELS DEC USERS/OTHER TPM SERVICE

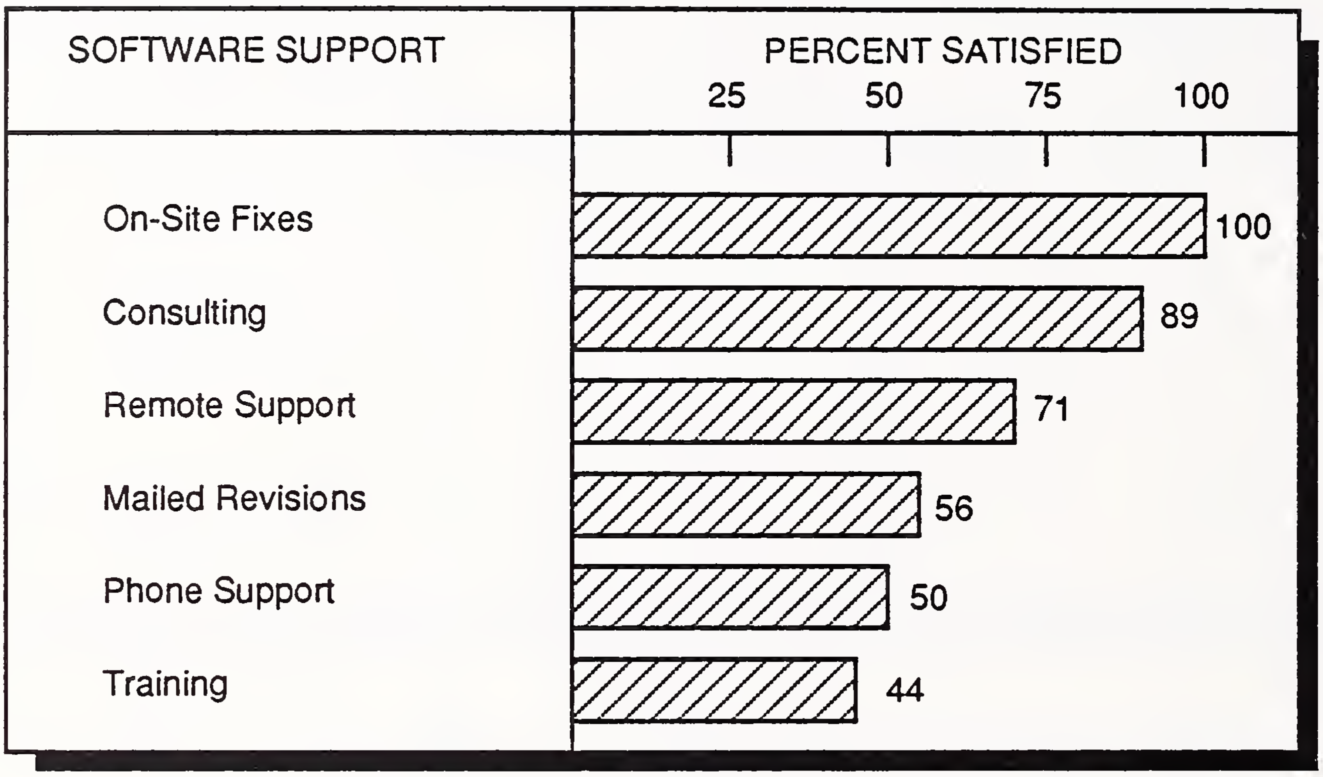
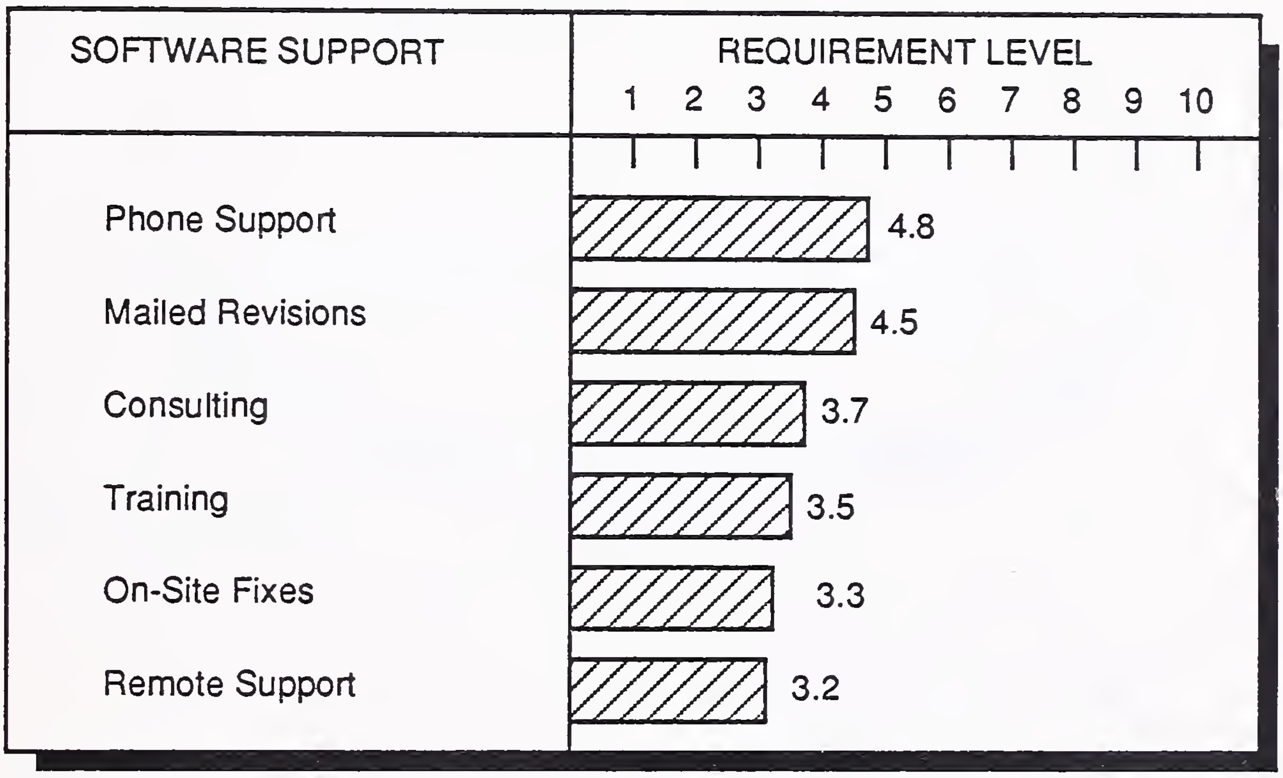


EXHIBIT VII-19

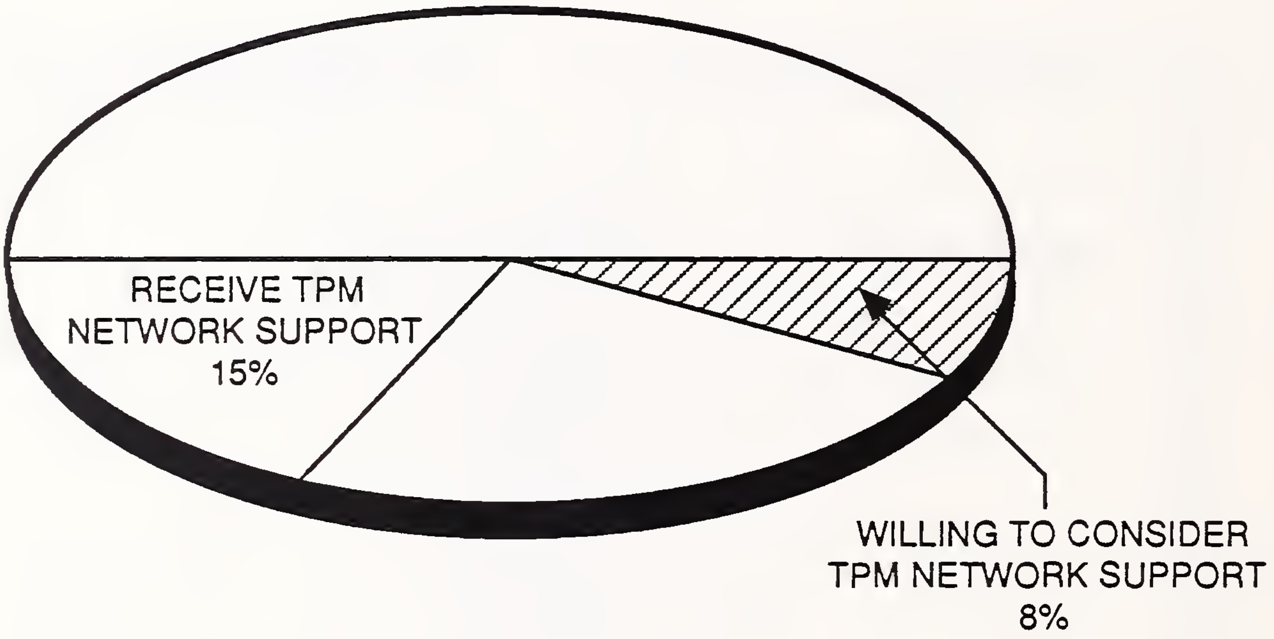
TPM APPLICATIONS SOFTWARE SUPPORT OPPORTUNITY LEVELS DEC USERS/OTHER TPM SERVICE



REQUIREMENT LEVEL SCALE: 1 = LOW, 10 = HIGH

EXHIBIT VII-20

THIRD-PARTY NETWORK SUPPORT OPPORTUNITY
DEC USERS/OTHER TPM SERVICE



SAMPLE = 13 NETWORK USERS

VIII

Summary

VIII

Summary

A Introduction

This chapter presents a brief summary of the findings of this study. In keeping with the focus of the report, this summary will emphasize the opportunities uncovered by the research rather than simply recounting statistical data. In addition, a list of recommendations will be presented as action items for additional service growth in the DEC equipment market.

As the TPM industry matures, the TPM user and prospective user also mature. Price becomes less of an over-riding concern, and issues of service quality become most important in the selection of a TPM service vendor. This study and INPUT's 1987 **TPM User Service Requirements** study (soon to be released) both demonstrate that the TPM selection process first involves vendor reputation for high-quality, prompt service for all the equipment at the user's site (the concept of single source). Only after this concern has been satisfied does the issue of price arise.
And while it is true that a certain small percentage of users will always be dissatisfied with their manufacturer's service performance, most users do not consider this dissatisfaction an important factor in their selection process.

This study found that the majority of TPM users surveyed were generally pleased with the service that they received from their vendors, a finding supported by the fact that only 11% of those users responding were contemplating a reduction of their use of TPM in the future.

What became obvious is that while most TPM customers reported overall satisfaction with whatever software support and professional services they received from their TPM, few now place a high priority on these service areas. But as the hardware maintenance market becomes more price-competitive, TPMs will need to lessen their dependence on hardware maintenance revenue sources and become more involved in software support and professional services.

It is apparent that most TPM users do not associate TPMs with these service areas and thus do not place as much value on receiving these services from their TPM. To overcome this, TPMs will need to better market their strengths in these areas in order to raise user consciousness of and requirements for these services.

B

CDC's Position in the Market

As stated previously in this study, CDC holds the leading share of the DEC TPM market. INPUT estimates that CDC holds 18% of the DEC TPM market, compared to 15% for Sorbus, 13% for TRW, 12% for McDonnell Douglas, and the remaining 42% split between smaller companies. CDC held a much larger share of this project's user sample, but that can be attributed to the fact that systems were targeted rather than older equipment and peripheral products.

Certain companies have been successful at capturing specialized niche markets. Eaton Corporation, for example, specializes in the DEC federal government market and has been aggressively targeting these DEC sites by pricing on a site-by-site basis, rather than on a scheduled or price list basis.

GE has been exhibiting fast growth in the TPM market since the GE/RCA merger. While its current share of the DEC TPM market is estimated to be under 10%, it has been quite successful at increasing its recognition in that market.

Exhibit VIII-1 shows the number of times each TPM was considered by users in this DEC sample, along with the reasons given by each respondent for not choosing the TPM. CDC leads with 27 “considerations,” with price, satisfaction with DEC’s service, and parts availability the primary reasons for non-selection.

GE came in second with 20 “considerations.” Again, price was the primary reason for not choosing GE, and perceived lack of coverage also received multiple mentions.

TRW and Sorbus received only four and two "considerations," respectively.

Exhibit VIII-2 indicates that CDC has been most aggressive at drumming up additional business in the DEC equipment service market, having contacted 33 user respondents in the past twelve months. GE contacted 11 users (in the sample), followed by McDonnell Douglas (7 users) and TRW (5 users).

Thus, it is apparent that CDC is maintaining its leadership role by keeping in the eyes of the users, through both marketing and sales efforts that exceed those of the most direct competitors.

The most aggressive competition comes from GE, which has built a strong presence in the DEC service market since its merger with RCA. GE's ratio of "times considered" to current market share suggests that users recognize GE as a major player in the market.

C

TPM Service Opportunities

As manufacturer service organizations drop hardware maintenance prices to levels that make it increasingly difficult for TPMs to continue to beat (or even meet), TPMs will need to identify new non-hardware maintenance revenue opportunities to replace lost service dollars.

Exhibit VIII-3 presents service improvements and new service opportunities as suggested by the DEC user sample. Software support was most often mentioned, followed by planning/consulting services. CDC has already introduced new service offerings for software support for both IBM and DEC software. What CDC needs to push is a expanded program of professional services that emphasizes performance improvement as well as traditional planning and consulting services. In this way, CDC will evolve the focus of their service offerings away from "reactive" remedial maintenance to the less price-sensitive image of total (performance) support organization.

Key to this development is the expansion of network planning and support services offered to users, particularly in the fast-growing DEC product market. DEC emphasizes network solutions, as do other vendors (most notably Sun Micro, which advertises that "the network is the computer"). Users look in-house for support to a great extent, largely due to the absence of any viable vendor support offering. CDC needs to develop the internal expertise to provide a comprehensive network support offering, or at least formulate strategic partnerships with existing network specialist until in-house expertise is developed.

This is no easy task, since manufacturers and TPMs both recognize the need to increase and improve their capabilities in this area. One limiting factor is a shortage of skilled network specialists available to meet this demand. This predicament can be best illustrated by Sun Micro's recent announcement of new network planning and support offerings while admitting that the company does not have sufficient internal expertise to provide such services yet.

However, the tremendous growth of networked systems increases the need for a full-service vendor to step in and access this high growth and visibility service market. CDC is well positioned to assume such a position, as a result of its experience as a manufacturer, a third-party maintenance organization, and a large user of DEC equipment.

EXHIBIT VIII-1

TPM CONSIDERATIONS AND REASONS FOR NON-SELECTION

TPM VENDOR	CONSIDERATIONS	TYPICAL REASONS NOT CHOSEN
CDC	27	"Price" (5 Mentions) "Satisfaction with DEC" (3) "Parts" (2) "Location"
GE	20	"Price" (4) "Coverage" (3) "Satisfaction with DEC" (2) "Spares" "Lack of Follow-Through"
McDonnell Douglas	5	"Lack of Confidence" "Price" "Reputation" "Satisfaction with DEC"
TRW	4	"Price"
Grumman	2	"Response Time" "Satisfaction with DEC"
Sorbus	2	"Wanted Consistency"

EXHIBIT VIII-2

TPM SALES CONTACTS IN LAST TWO MONTHS

TPM VENDOR	NUMBER OF SALES CONTACTS
CDC	33
GE	11
McDONNELL DOUGLAS	7
TRW	5
UNISYS	3
GRUMMAN	2
SORBUS	2

EXHIBIT VIII-3

TPM SERVICE OPPORTUNITIES

IMPROVEMENT/ NEW SERVICES RECOMMENDED	NUMBER OF MENTIONS
"Better/More Software Support"	7
"Better/More Planning/Consulting"	4
"More Spare Parts"	3
"Network Planning/Support"	3
"System Optimization"	2
"Better Training"	2

A

Appendix: Questionnaire

A

Appendix A: DEC User Service Market Analysis

1. Who currently services your equipment? ____________________

2. For what product(s)?

	a. Manufacturer	b. Model	c. Product Type
1.	________	______	________
2.	________	______	________
3.	________	______	________
4.	________	______	________
5.	________	______	________

3. a. If respondent uses TPM but not on the CPU, why not? ____________________

   b. If only on the CPU, why not on the peripherals? ____________________

4. Which TPMs did you consider, and why did you not choose them?

	a. TPM Vendor	b. Reason for NOT Choosing
1.	________	________________
2.	________	________________
3.	________	________________

5. How important, on a scale of 1-10 (10 = Most Important), are the following factors in choosing third-party maintenance as your service source?

	Importance 1-10
a. Price	________
b. Geographic Proximity	________
c. TPM Vendor Reputation	________
d. Ability of TPM to Service Mixed-Vendor HW	________
e. Improved Response Time	________
f. TPM Only Service Available	________
g. Availability of SW Support	________
h. Dissatisfaction with MFR-Service	________

6. What percent discount, if any, would you expect for choosing TPM over manufacturer-supplied service? __________%

7. a. What is your requirement for response time? ______.___ hours

   b. What response time do you receive? ______.___ hours

8. a. What is your requirement for repair time? ______.___ hours

   b. What repair time do you receive? ______.___ hours

9. a. Please rate your requirement (1 = Lowest Requirement, 10 = Highest Requirement) for the following services.

   b. Then, on the same 1-10 scale, please rate your level of satisfaction (1 = Lowest Satisfaction, 10 = Highest Satisfaction) for each service.

	a. REQ	b. SAT
1. Professional Service (e.g. Consulting, Planning)	______	______
2. Hardware training	______	______
3. Add-on/supplies sales	______	______
4. Relocation/deinstalls	______	______
5. Conversion/upgrades	______	______

10. a. How important, on a scale of 1-10 (1 = Lowest Importance, 10 = Highest Importance), are the following service factors?

b. Please rate your satisfaction (1 = Lowest Satisfaction, 10 = Highest Satisfaction) with the following:

	a. IMP	b. SAT
1. FE skill level	______	______
2. Parts availability	______	______
3. Dispatching	______	______
4. Contract flexibilty	______	______
5. Overall quality of support	______	______
6. Response time	______	______
7. Repair time	______	______

11. Do you currently receive system software support from your service vendor? ______

(ASK Q12 ONLY IF Q11=YES, ELSE, SKIP TO Q13)

12. a. Please rate your requirement for each service listed below.

b. Please rate your satisfaction for any service that you receive.

	a. REQ	b. SAT
1. On-site implementation of fixes	______	______
2. Telephone support	______	______
3. Remote downline fixes	______	______
4. Training	______	______
5. Consulting	______	______
6. Mailed revisions/updates	______	______

13. If you do not currently receive systems software support from your vendor, please rate your requirement (1 = Lowest Requirement, 10 = Highest Requirement) for the following:

	REQ 1-10
1. On-site implementation of fixes	______
2. Telephone support	______
3. Remote downline fixes	______
4. Training	______
5. Consulting	______
6. Mailed revisions/updates	______

14. Do you currently receive applications software support from your service vendor? ______

(ASK Q15 ONLY IF Q14 = YES, ELSE, SKIP TO Q16)

15. a. Please rate your requirement for each service listed below.

    b. Please rate your satisfaction for any service that your receive.

	a. REQ	b. SAT
1. On-site implementation of fixes	______	______
2. Telephone support	______	______
3. Remote downline fixes	______	______
4. Training	______	______
5. Consulting	______	______
6. Mailed revisions/updates	______	______

16. If you do not currently receive this support, please rate your requirement (1 = Lowest Requirement, 10 = Highest Requirement) for the following:

	REQ 1-10
1. On-site implementation of fixes	______
2. Telephone support	______
3. Remote downline fixes	______
4. Training	______
5. Consulting	______
6. Mailed revisions/updates	______

17. Which new areas of service would you like your TPM vendor to cover? ______________

____

____

____

18. Do you currently use a network? ______

a. Which one? ______

b. Who supports the network? ______

______

(ASK "C" ONLY IF A TPM IS NOT ALREADY SUPPORTING THE NETWORK)

c. Would you be willing to have a TPM support the network?

19. Does your company expect to increase or decrease its use of TPM services over the next year?

______

______

20. Have you been contacted by any other TPM companies in the past year? ______

a. If yes, which ones?

1. ______
2. ______
3. ______